# The NORMAL CHILD

## It's Care and Feeding

Alan Brown, M.B.

# THE NORMAL CHILD

# THE NORMAL CHILD
## ITS CARE AND FEEDING

BY

ALAN BROWN, M.B.

Physician in Chief to the Hospital for Sick Children, Toronto; Associate Professor of Medicine in charge of Pediatrics, University of Toronto; Physician in charge New-Born Clinic, Toronto General Hospital; Director Department Child Hygiene, Local Board of Health; Consulting Pediatrist to the Provincial Board of Health, Ontario, Riverdale Isolation Hospital, Woman's College Hospital, and St. Mary's Infant's Home; Honorary Member North Coast Pacific Pediatric Society, Portland, Oregon

THE CENTURY CO.

*New York and London*

1923

PRINTED IN U. S. A.

THIS BOOK IS DEDICATED

TO THE

YOUNG MOTHERS OF CANADA

# PREFACE

This volume is presented to the public with no claim for original material beyond that obtained from an extensive hospital and private practice. Much of the material has been obtained from various books, periodicals, and pamphlets, to which the author is deeply indebted. The information is stated in as simple and up-to-date form as possible, and it is hoped that it will be of value to the mother, nurse, and student of the normal child.

A child who is to grow and develop normally requires plenty of good food, sleep, exercise and out-of-door life. In addition, special care must be devoted to the prevention of certain weaknesses and defects by attention to them in the earliest stages. A child must also be guarded as far as possible against attacks of illness. Every mother should recognize the fact that any illness, however brief and slight, is a hindrance to growth, and that every hour spent by the child in pain or disturbance means some loss to him and may mean permanent impairment to some organ or function of the body. It is now known that many serious and chronic illnesses of adult life have their beginnings in some disease of childhood like measles, whooping-cough, scarlet fever, diphtheria, or the serious disturbances of digestion.

An important measure that the intelligent mother may take in the prevention both of illness and of weakness

and defects is to have the child thoroughly examined by its physician at regular intervals. After a child is ill or some defect or disability has grown up, the physician will do all he can to relieve the condition; but his services would have been infinitely more valuable if he could have had the opportunity to foresee and prevent the condition. This is being done for babies of the poor in hundreds of infant-welfare stations in many cities. Mothers bring their babies to these stations for regular weighing and examination, and are advised by the nurses and physicians as to the proper food and care necessary to keep the babies well and make them thrive.

The author is indebted to the following books and pamphlets relative to the subject: "Child Care," Part I, Max West (United States Department of Labor, Bureau Publication No. 30, 1918), for the chapter on "Sleep, Rest, Exercise, and Play in Older Children" and the chapter on "Discipline and Education," most of which is included verbatim, as obtained from this pamphlet; "Infant Care," Max West (United States Department of Labor, Bureau Publication No. 8, 1914), for many helpful suggestions and much of the material on clothing of the infant and, in addition, practical suggestions in infant feeding and preparation of food recipes; "Care of the Baby," Griffiths (W. B. Saunders Company), for the excellent chapter on "Growth of the Infant and Child," which has been included in its entirety; "Short Talks to Young Mothers," Kerley, for much of the material contained in the chapter on "Habits of Infants and Children," as well as the one on "Common Diseases of Childhood and the General Care of the New-Born Infant"; "Infancy and Childhood," Ramsey (E. P. Dutton &

Company), for suggestions on artificial feeding and special preparation of milk; Bulletin, 1918, New York City Department of Health, for much of the material contained in Chapter XVII; "The Baby's First Two Years," Smith, Houghton Mifflin Company (Boston), for the chapter, "Travelling with a Baby"; and the following for many other suggestions: "The Care of the Infant and the Young Child," Local Board of Health, Toronto; "Child Study and Child Training," Forbush; "Baby Clothing," Wilema Hitching; "Games for the Playground, Home, School, and Gymnasium," Bancroft; "The Mothercraft Manual," Read; "Practical Dietetics," Pattie. I hope that I have not omitted any reference; if I have it may be taken for granted that it was not intentional.

I wish also to acknowledge my indebtedness to Miss Elsie Luckam, director of the milk modifying laboratory, Hospital for Sick Children, for her critical review and suggestions on the Chapters on milk modifications and food values and recipes, and to Miss Helen Kelly, nurse in charge, Burnside obstetrical department, Toronto General Hospital, for her advice and criticism on the care of the new-born and maternal feeding.

ALAN BROWN, M. B.

423 Avenue Road,
Toronto.

# CONTENTS

## CONTENTS

# LIST OF ILLUSTRATIONS

# THE NORMAL CHILD: ITS CARE AND FEEDING

# THE NORMAL CHILD: ITS CARE AND FEEDING

## CHAPTER I

### THE NURSERY AND NURSE-MAID

**Location**

The nursery should be the largest and best ventilated room in the house. In a city home it should be situated on the third floor with a southern exposure. In flats or apartments, quietness and the possibility of free ventilation and sunlight should be essential. An "alley room" in an apartment under no circumstances should be used.

**Light**

Plenty of light, air, and sunshine are essential to the baby's welfare. Both light and dark shades should be used on the windows, as the new-born infant is very susceptible to light, and, therefore, for the first few weeks the nursery should be kept quite dark. Especially are the dark shades of value to exclude the morning light, that is so frequently the cause of early wakening in young infants. The unnecessary habit of young babies' waking at four or five o'clock may be readily broken by keeping the room dark. Particularly is this essential if the mother sleeps in the same room with the child.

### Furnishings

The nursery floor should not be carpeted. A hardwood floor is best. If this is not possible, a floor covering of oil-cloth or linoleum is equally efficient. One or two washable rugs may be permitted where they are most needed. No stationary wash-basins or plumbing of any kind should be permitted. Hardwood chairs and tables, with enamel or brass bedsteads, should be used. All furniture should be washable, and paint or hard finish is preferable to wallpaper.

### Ventilation

Particular attention should be paid to ventilation. This can always be secured by means of a window-board about four or five inches wide and long enough to fit the window exactly when the lower sash is raised to insert it. In this way one obtains a free passage of air directed upward without a draught. The nursery should always be aired for one hour in the morning and afternoon after the bath; during this process the infant should be removed to another room. It is needless to say that no cooking, washing, or drying of clothes should ever be permitted in the nursery at any time. A broom or a carpet-sweeper should never be used, but each day the furniture and floor should be wiped with a damp cloth in order not to raise dust, which is invariably the precursor of many head-colds and bronchitis.

### Heating

Steam heat is uncertain, especially in apartment-houses, and changes in the temperature are to be guarded against in the nursery. Where it is possible, it is wise to have at hand two sources of heat, so that if one fails the other

can be relied on. The best combination is steam or hot water and the open grate. Gas or oil stoves or gas grates should under no circumstances be used on account of their tremendous consumption of the oxygen of the air. Hot-air furnaces are not the most desirable, but may be made more efficient by keeping a large pan of water in the room to dampen the atmosphere.

### Temperature

The temperature of the room should be about 70 degrees by day, and at night not above 65 degrees even for a young baby. As the child grows older, the temperature can gradually be reduced till at one year it is 45 degrees. At three months an infant should be allowed to sleep in a room with the windows open, provided it is not below freezing outside and the child is not delicate. The temperature of the room should not be estimated but should be governed by a thermometer hung three feet from the floor. As a result of an excessively warm nursery temperature, many children become pale, lose their appetites, and even show symptoms of indigestion, such as occasional vomiting and loss of weight. Further, they perspire freely and catch cold readily.

### Lighting

Gas should not be permitted to burn in the nursery at night, and where there is no electric light a wax night-light should be used.

### Screens

Screens should be used on all the windows in summer-time not only for flies but for mosquitos, as some babies are severely poisoned by mosquito-bites. Flies are dan-

gerous because they may alight on the nipple of the baby's bottle or on the food, and a fly's feet carry germs from their last resting-place.

**The Nurse-maid**

The mother who can afford to have a helper should never take entire charge of her infant, neither should she share this charge with the general servant or housemaid. Every one knows, or at least should know, that the growing infant requires more attention than can be given by one individual. If one person be given charge of the child, whoever it be, mother or nurse, one or the other will suffer from overwork, and consequently her services will be less efficient. Many a young mother sacrifices her health because of a false sense of duty in this respect. The close confinement ruins her health; she becomes prematurely old; the future children are less vigorous and are susceptible to illness, beginning life, as a consequence, handicapped. Further, constant care from the mother is not necessary. In fact, it is injurious in a number of cases, as she is apt to spoil the child and overentertain it. From what has been said it must not be understood that the helper or nurse-maid should have complete charge of the child. Such an arrangement should not be tolerated; her relation, rather, should be that of a co-worker.

The selection of the nurse-maid is a matter of considerable importance. Schools for training nurse-maids are established in New York, Boston, Albany, and Newark; and of late one has been begun at the Hospital for Sick Children, Toronto. Needless to say, such trained help as this is more or less limited. Women who are of about middle age, at which time the attractive qualities of police-

men and grocery-boys have faded into a dim recollection, and who are fond of children and cleanly in their habits, very often make capable attendants. Any industrious, common-sense young women can be trained in a few weeks to be very useful. Whichever type be selected, it is essential that health and morals be of the highest quality, for the association with the growing child is intimate, and habits that are hard to break are readily formed. No woman should be accepted unless she has been recommended by a physician.

## CHAPTER II

### THE NEW-BORN BABY

As soon as the cord has been cut, the infant begins an independent existence. It is made to cry; the eyes and the mouth are cleaned; the sterile gauze binder is applied to the cord; and then it is wrapped in a warm blanket and placed in a crib with hot-water bag, well protected till further attention is possible. Neglect at this stage is very frequently disastrous. As soon as the nurse can direct her attention to the child, the binder is firmly sewed on, and the child is thoroughly rubbed with liquid albolene or sweet-oil, followed later by a sponge-bath with luke-warm water and Castile soap. The stump of the cord should be dusted with

Salicylic acid, 15 grains.
Starch, 1 ounce.
Powdered zinc oxide, 1 ounce.

at least twice a day, and then wrapped in dry sterile gauze. When the cord falls off, the part should be kept thoroughly dusted with the same powder till scar formation is complete. The baby should never be without a sterile cord binder, which should be replaced, when soiled, with a new one, only the sponge-bath being given during this time; and when the cord separates, which is usually from the fifth to ninth day, the tub-bath may then begin. The navel should be cleansed each day with sterile ab-

sorbent cotton. And undue swelling or redness, especially bleeding, should be reported to the physician.

### Bed and Bedding

The baby or child should have a separate bed and should not be allowed to sleep with the mother or nurse. The mattress should be of hair covered with rubber, a sheet, then a cotton pad, and finally a cotton (not a linen) sheet. For the first few weeks it is better if the infant lie without a pillow. A small pad of hair pillow can be used thereafter; feathers are too heating.

As coverings for the bed six cotton sheets, two warm woolen blankets, and two bed rubbers should be provided, so that a fresh aired one may be used each day, and, if necessary, an eiderdown quilt may be used. All covers should be light but sufficiently warm. He should never be kept so warm that his head perspires, as this predisposes to catching cold. If the feet are cold, a hot-water bottle well covered may be used, but great care should be taken that it is not hot enough to burn the skin, which is very vulnerable at this tender age.

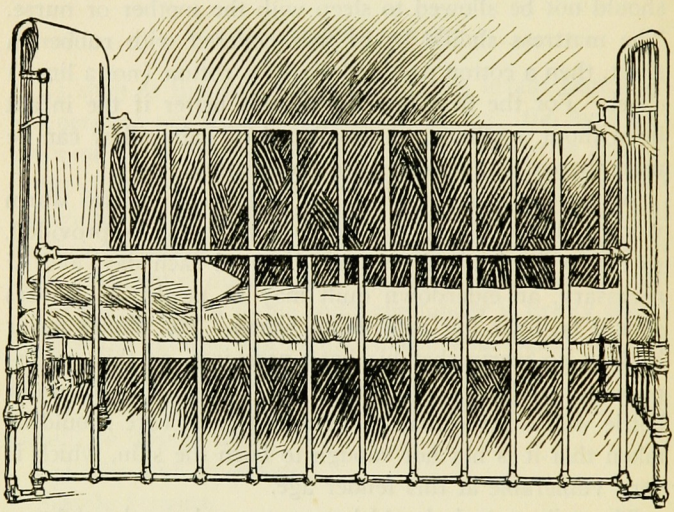
The crib or bed should be constructed simply of brass or white-enameled iron, or it may be a lined clothes-basket without superfluous draperies and hangings. The old-fashioned cradle in which generations have been rocked may be an interesting antiquity, but under no circumstances should it be removed from its proper place in the garret.

### Care of Bedding

All bedding should be thoroughly aired and shaken out each day. Sheets and pads that have been soiled should be washed and thoroughly dried before using.

**Position of Bed**

The bed should be so placed that it is away from all draughts and the light should not fall directly on the infant's face. Where this is impossible, a screen made of washable material will serve for purpose of protection.



Child's Crib

## CHAPTER III

### CLOTHING THE BABY AND THE OLDER CHILD

A basket in which all necessary toilet-articles may be kept together will be found of great convenience. The following list should be provided:

Pin-cushion, three sizes of safety-pins.
Soap-box.
Castile soap.
Puff-box containing as a dusting-powder zinc oxide and powdered starch.
Baby-brush.
Fine-tooth comb.
Saturated solution of boracic acid.
One pound of absorbent cotton.
Package of wooden tooth-picks.
Tube of white vaseline.
Bath-thermometer.
Package of sterile gauze.
Needle and thread.
Some old linen.
New hot-water bag.
Large white-enamel pail with enamel cover for diapers.
Bath-tub of rubber.
Baby-clothes-horse or -tree.
Flannel bath-apron.
Rubber bath-apron.

6 wash-cloths of flannellet, nine-inch grade.
6 baby bath-towels.
6 baby face-towels.
Pair of small scissors.
6 dozen diapers, cotton bird's-eye, 2 dozen 20 by 40 inches and 4 dozen 24 by 48 inches.
6 sterile gauze binders.
4 silk and wool or cotton and wool shirts, second size.
4 flannel petticoats, Gertrude style.
4 pairs of knitted pants.
6 plain slips for night and day use during first five or six weeks.
4 pairs of knitted or crocheted bootees.
3 knitted or flannel sacks.
2 soft shawls.
1 warm hood.
1 pair of mittens.

After the first two months four knitted bands with shoulder-straps will be needed and six plain dresses for daytime.

**General Directions**

The clothing of infants should be as simple as possible, moderately snug-fitting, and such that there will be no wrinkles to trouble the child; yet at the same time it should be sufficiently loose to permit perfect circulation and freedom of exercise.

**Underwear**

In Canada and in the parts of the United States where the winters are severe it is essential that infants wear

wool garments, especially next the skin. There are usually four grades sold. The grade next to the heaviest should be chosen, as the heavier grade is cumbersome for young infants and makes a child unduly susceptible to sudden changes. The medium grades usually have a mixture of silk and wool or cotton and wool. It is a mistake to "pile on" clothes, for any degree of cold may always be met by the addition of sufficient outer garments. In the summer the undergarments should be of the lightest grade of silk and wool or cotton and wool.

During the first six or eight days the infant should wear a sterile gauze binder sewed in place, not fastened with safety-pins. In winter a woolen undervest may be worn with long sleeves and high neck. The diaper should be pinned to the vest in order to prevent the shirt from wrinkling and at the same time to keep the napkin in place. All diapers should be of bird's-eye cotton or of stockinet but not of linen.

In summer the diaper may be pinned to the band and the undervest discarded. The practice of using rubber diapers should be discouraged, as they prevent evaporation and tend to macerate the skin. They are permissible only when traveling.

### Covering of the Feet

Knitted or crocheted bootees should be worn. It should be the duty of every mother to see that the infant's feet are always kept warm. Soft kid bootees and thin silk socks may replace the woolen ones in summer.

### Outer Clothing

The flannel skirt should be supported from the shoulders and not pinned in a belt-shaped fashion around the

abdomen. The dress should be simple, and in the winter the infant should have a knitted or flannel jacket. During the first three weeks a soft cashmere or woolen shawl should be wrapped around the baby, including its head.

When the baby is taken for an airing, the coat should be warm but light, and the cap should be of silk with a flannel lining. Care should be taken that the cap is not so heavy as to produce perspiration, nor, on the other hand, so light that the infant would run the risk of catching a cold. In winter he should wear woolen or fur-lined mittens, pinned snugly to the coat-sleeves so as to prevent chafing at the wrists.

### Night-Clothes

A baby's night-garments—after he has passed the stage of infancy, when they are very much the same as those worn in the daytime—should consist of a shirt and a woolen union-suit with feet. This latter specification is extremely essential, for the growing child has an inherent tendency to kick off its clothes in the warm part of the night, thus being left more or less exposed to the cool air. In very warm days the woolen union-suit may be replaced by a thin flannellet one without feet.

### Bare Legs

It is never advisable to allow children to go bare-legged except in extremely hot weather; and then the fewer the child's clothes the better, as it will not be weakened by the excessive heat.

### The Time to Shorten the Babies' Clothes

No long clothes should be worn at any age as they hinder the infant from exercise, and at this age kicking

is most beneficial to the baby. Soft, broad, solid kid shoes and long stockings should also be provided at this age.

### Clothes for Older Children

The majority of older children are certainly clothed too heavily even in cold climates. This fault, coupled with excessively heated nurseries, are two of the most frequent causes of head-colds in young children. It is not necessary to clothe the healthy young child in flannels as are the grown-ups. The children are much more active, and their living-rooms are invariably warmer. As a child grows older his clothing ought to be lighter, and his underwear should be principally of cotton. Woolen stockings should not be used, as they cause the feet to perspire. When the children go out of doors, the addition of coats and leggings (not of leather) render thick flannels unnecessary. Extra wraps should always be provided in traveling, especially at the sea or lake shore or in the mountains.

### Wraps

Children's coats and all garments intended for out-of-door wear in winter should be soft and warm and sufficiently light in weight to permit perfect freedom of motion. Rough-surfaced woolen materials, somewhat loosely woven, will be warmer and at the same time lighter in weight than those, that have a hard, smooth finish. A comparatively thin material, like serge, may be used for coats, if an interlining of flannel or wool wadding is used to give the necessary warmth.

### Amount of Clothing

It is perhaps needless to say that climate, season, and

local conditions will dictate the amount of clothing a child should wear. In very cold winter weather every part of the body from the neck downwards should be warmly clad and the clothing so distributed that all parts of the body are equally warm. The habit of permitting young children to wear short socks when the temperature is well toward freezing controverts all ordinary rules of health. It would be just as reasonable to send a child out in cold weather with bare arms as it is to send him out with the calves of the legs exposed. It is difficult to reconcile such a custom with reasonable prudence.

Children are sometimes dressed so warmly in winter that undue perspiration results and they take cold at the slightest exposure. If too lightly dressed, the child will have cold hands and feet, blue lips, and a pinched appearance. A mother must use her common sense and make whatever changes are indicated by the child's condition. If his face is flushed after playing about the room for a few moments, or if the perspiration shows about his head and face, and especially if he becomes fretful and impatient for no apparent cause, it is likely he is too warmly dressed. Delicate or convalescent children require warmer clothing than the robust.

In excessively hot weather it is hardly possible to dress a child too lightly. Only the fewest and thinnest garments should be worn while the heat lasts, but the child must be guarded against a possible chill when the temperature suddenly falls.

### Hats and Caps

A child may go bareheaded most of the year, but in summer a simple light-weight straw or cloth hat is neces-

sary to protect the head and face when the sun is very hot. For winter-wear a soft tam-o'-shanter of wool or velvet, or some equally soft little cap that stays on and fits closely down about the ears and neck, is most suitable. Stocking-caps are comfortable for the coldest weather, but to wear them indoors is dangerous. Mothers should instruct their children to remove both their caps and coats when they come into a warm room to stay for any considerable period. Waterproof coats, boots, and overshoes should be removed on coming indoors.

**Shoes and Stockings**

The human foot is a delicately adjusted mechanism of bones, ligaments, muscles, nerves, and blood-vessels which in the growing period is very easily distorted or thrown out of balance by continued pressure of badly fitting shoes or by lack of attention to the beginning of trouble. It is impossible to measure the handicap that "flat foot," with its resulting inefficiency, imposes upon the human race, but that it is great enough to warrant the taking of all the pains necessary to prevent it is beyond dispute.

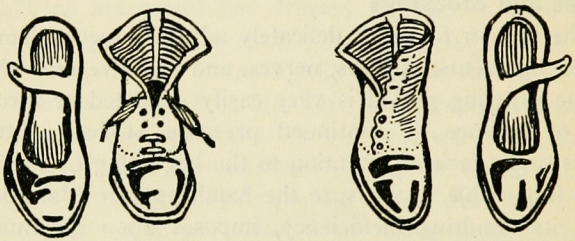
Children's shoes should be fitted on a last that conforms to the natural shape of the foot. Shoes that are too short have a tendency to produce enlargement of the joints of the great toe by pressing against the end. Shoes that are too loose rub blisters and calluses on various parts of the feet. Those that are too tight give rise to corns, and those that are too pointed bend the toes toward one another and spoil their shape, while those that are not properly fitted at the instep fail to furnish the necessary support to the arch and the ankle. Unfortunately custom or fashion is often allowed to dictate the

sort of shoes that children shall wear, and it may be hardly possible to find the right kind of shoes in some communities.

The child should, whenever possible, be taken to the shop to have the shoes carefully fitted. When shoes must be ordered by mail, the measurement around ankle and instep should be taken, using an accurate tape-line.

### Fitting the Shoes

It will be seen from the diagram that in childhood the inside line of the foot is nearly straight. When the child




Courtesy, Dept. Public Health, Toronto

stands with his feet parallel they touch each other throughout most of their length. The outer edges of the soles curve outwards naturally, and the shoes must provide room for these curves without pressing on the toes. The outline of the foot should be drawn while the child stands on a sheet of white paper. This outline will probably be clearer if he wears his stockings, unless the stocking is too short, in which case it will make the outline too short and too wide. This outline and the ankle and instep measurements may be sent to the shoe-dealer when it is necessary to order the child's shoes by mail. The shoe

should be one inch longer than the outline of the foot and a quarter of an inch wider.

### Winter Shoes

Winter shoes should have thick but flexible soles. It is no uncommon sight to see a young child walking on an icy pavement wearing thin-soled shoes without overshoes. Although he may be dressed in heavy woollen coat, cap, mitts, etc., he is not thereby at all protected against the chill that comes through the thin, dampened soles of his shoes.

Rubber overshoes or boots are necessary when the ground is wet or muddy or the snow is deep, but they should be removed as soon as the child comes into the house. Rubber-soled shoes are likewise unsuitable for regular wear, unless there is an insole of leather.

Although he may be dressed in heavy woolen coat, cap,

In babies up to three months or thereabouts it is usually best to use knee shaped woolen knitted boottees pinned to the diaper; after this silk and wool stockings may be worn. No stockings are necessary for infants in the very warm weather while for runabouts at this season socks may be worn.

### Care of the Napkin

Wet napkins should be removed at once from the nursery and put in a pail in the bathroom containing some disinfecting solution, such as carbolic acid, one teaspoonful to two gallons of water. After this they should be thoroughly washed, rinsed, boiled and ironed once a day a good laundry soap being used and care should be taken to see that the napkins are perfectly dry before using. Never use a napkin a second time until it has been thoroughly washed. In washing napkins no starch or blueing should be used.

## CHAPTER IV

### BATHING

**How to Lift Infants**

A new-born infant should be handled as little as possible; that is, no more than is necessary in bathing and

How to lift a baby

caring for him and in changing his position in his crib from time to time. In fact, this rule might be applied to older infants after feeding. It is too frequently the

case that after a big meal he is picked up and amused by one of his fond relatives. A baby should never be lifted by the chest, and an infant under six months should never be raised without supporting his head or abdomen. The proper way is to catch hold of his clothing below the feet with the right hand and lay the palm of the left hand under his back with the fingers extended under his head and neck. In this way the entire spine and head will be supported. Until the fifth or sixth month a baby should never be raised without supporting the head at the same time.

Older children should be grasped under the armpits, never by the wrists or arms; serious injury might easily be inflicted.

### Bathing the First Few Days

The new-born child should be given a basin-bath daily with lukewarm boiled water and Castile soap until the cord falls off and the navel heals. In bathing both young and older babies the room should be warm, usually from 76 to 80 degrees. Windows and doors should be closed to prevent draughts, and, if possible, there should be an open grate fire in the room.

### Articles Used in Bathing

The following articles are necessary and should be in readiness before beginning the baby's bath, so that it may be given quickly and without interruption:

1 An oblong rubber or tin bath placed on a low table.
2 Bath-thermometer.
3 Low rocker for the use of mother or nurse.

4 Small face-cloths.
5 Castile soap.
6 Talcum-powder
7 Baby-towels.
8 Threaded needle for sewing binder (till the cords come off).
9 Scissors.
10 Soft hair-brush.
11 Rubber apron and a large piece of flannel to be worn over it.
12 Absorbent cotton.
13 Solution of warm boracic acid, one teaspoon to the pint.

The baby's clothes should be slightly warmed and hanging on a clothes-rack near-by. A sponge should never be used in any portion of the bathing process and should not be used in the nursery outfit, as it is never clean after it has been used once.

### Time for Bathing

The young infant may be given a tub-bath after the tenth day, i. e., when the cord has dried and fallen off. The tub-bath should be given preferably in the morning about two hours after the first feeding. This time is most convenient as the baby will then receive his next feeding soon after his bath and will invariably go to sleep immediately after. At about six months of age the child may be given his tub-bath at night, one hour after his meal, or just before his meal, and have his supper in a warm dressing-gown just before being put to bed; a basin-bath may then be given in the morning.

### Temperature

The temperature of the bath for the very young infant

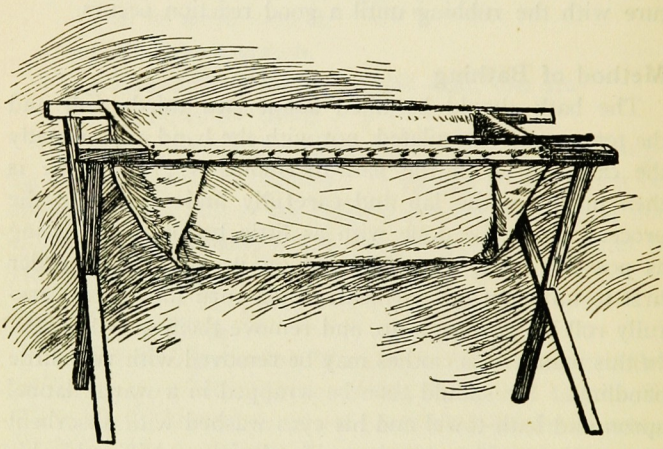
should not be below 95 nor above 100 degrees. Young children should not be kept in the water more than three minutes. At the fourth month the temperature may be lowered to 90 degrees, and at one year, if the infant is quite vigorous one may begin with the water at 90 and gradually lower it to 80, during which time the child should be vigorously rubbed with the hand while in the water. If there is not a good reaction and the feet and hands are cold and blue, it is better to raise the temperature with the rubbing until a good reaction occurs.

**Method of Bathing**

The bath should be filled about two thirds full and the temperature regulated, not with the hand as is usually the case, but with the bath-thermometer. The baby is then taken on the lap and carefully undressed, and the process should be done with as little turning and lifting as possible. Lay the child flat on its stomach in order first to unfasten his garments; then turn him over, carefully roll his garments up, and remove them over his feet. In this manner his clothes may be removed with very little handling. He should then be wrapped in a warm flannel apron and bath-towel and his eyes washed with absorbent cotton dipped in warm boracic solution. After this his face should be washed in the warm water. Then the head and the ears can be soaped with the face-cloth, washed, and thoroughly dried with a soft baby-towel. When this is finished, the baby may be soaped, and then he is carefully lifted into the bath. With a young child care should be taken to see that the head and the back are well supported with the one hand and the ankles grasped with the other. The baby should be placed in a semi-reclining position, and carefully sponged. One should

pay particular attention to the thorough cleansing of the genitals as cleanliness is essential to the health of these parts. An infant should not remain in the bath longer than three minutes. Occasionally a child will show fear at the sight of the bath. In order to avoid this, a sheet can be placed over the tub and the infant carefully lowered into it.

After the operation of bathing is completed he should be carefully lifted out in the same manner as before and



Rubber bath

placed on the lap, where the towel has been spread over the rubber and flannel aprons. Roll him in the bath-towel and apron, and thoroughly dry him but without rubbing. Then dust him with powder, paying particular attention to the folds of the skin. Put on his knitted binder, his diaper, and, finally, his clothes. The clothes should not be pulled on over his head, but rather drawn over the feet after slightly raising the body by the ankles; they can in this manner be drawn on more readily.

### Cleaning of Mouth, Nose, and Ears

As soon as the baby is dressed, the mouth should be cleansed with a piece of absorbent cotton wrapped around a wooden toothpick and dipped in a boracic solution. Under no circumstances should the mother or nurse's finger be used for this purpose, as there is great danger of injury to the delicate mucous membrane of the mouth.

The nose and the ears should then be examined and treated in the same manner, using a clean swab in each case.

### Bath for Older Children

For "runabouts" from two to three years of age it may not be wise to use water below 70 degrees after the cleansing bath, but many children older than this can stand the water applied in the form of a cold douche at a temperature between 50 and 60 degrees in the winter; in the summer and early autumn it may be taken directly as it flows from the faucet.

When giving a child a cold douche, he should stand in warm water just covering the ankles. The douche may be applied in the form of a shower or spray, and the head should be protected by an oil-skin or rubber bathing-cap.

Immediately after the cold douche, there should be vigorous friction of the skin with a rough bath-towel, or, if the extremities are blue or "goose-flesh" appears, use water not quite so cold over the body. Do not discontinue the douche because the first one does not produce the expected effect.

### Contraindication to Bathing

On account of the exposure and fatigue, baths should never be given to feeble or delicate infants, or in acute

illness, unless ordered by the physician. In eczema and many other forms of skin-disease, bathing aggravates the condition, and in these cases, also, the advice of the physician should be sought. Soap should not be used in bathing an infant with prickly heat.

### Baths for Fever

The child with fever should be placed in the bath at a temperature of 95 degrees, and it should be gradually reduced to 75 by the addition of ice or cold water. The child should not be left in the bath longer than ten minutes, and during the whole time he should receive constant friction. If it is found more convenient, a basin-bath may be given, using eight ounces of alcohol to a quart of water at a temperature of 70 degrees. The child should be stripped and covered with a flannel blanket and sponged with this solution for fully fifteen minutes. This plan should be adopted by the mother before the physician arrives in any case of fever rising to 104 degrees.

### Baths in Hot Weather

Either the basin or the tub may be used three or four times throughout the day in hot weather. There is nothing else that gives so much relief and is so especially conducive to a refreshing sleep. The very young feel the extreme heat most acutely and endure it with difficulty, and I have found this form of hydrotherapy to be most soothing under these conditions.

### Mustard-Baths

A mustard-bath is used in convulsions, prostration, or to soothe a restless, crying, nervous infant. It is pre-

pared by adding a heaping tablespoon of mustard to five gallons of warm water. Before the mustard is added to the water it should be mixed in a cup with a little water to a smooth paste and then added to the bath-water. Otherwise there is danger of particles of mustard adhering to the skin and causing burns. Three minutes, followed by a brisk rubbing, are quite sufficient.

**Soda-Baths**

A soda-bath is of use in cases of prickly heat, from which many children suffer during the summer months. A tablespoon of bicarbonate of soda should be added to each half-gallon of warm water. There should be little or no friction, and the child should be dried with soft towels.

**Bran- and Starch-Baths**

Both of these are of service in prickly heat, and the same method is employed as in the soda-bath, except that one cupful of bran or starch is mixed with several gallons of water.

**Hot-Bath**

The hot bath is very useful for prostration, for cold extremities, or as a means of stimulation. The child should be placed in water which has been raised to 108 or 110 degrees. Constant friction of the extremities is maintained while in the water.

**Salt-Bath**

A salt-bath is useful in the case of delicate children and is prepared by adding a teacupful of common salt or rock-salt to each two gallons of water.

### Care of the Eyes

The eyes of the new-born infant should be carefully cleaned, as carelessness at this stage may lead to severe inflammation, sometimes with disastrous results.

For the first two weeks the eyes should be cleansed with boracic acid, one half teaspoonful to a pint of warm water. Carefully separate the lids, and squeeze a little of the warm solution into the eye from a piece of absorbent cotton and wash the eyelids carefully. Use a fresh piece of absorbent cotton for each eye. As the baby grows older, plain warm water is sufficient, using a piece of old linen.

### Inflammation of the Eyes

When the eyes become red or inflamed, or when any discharge appears, they should be cleaned every hour or two with the boracic acid solution and a little vaseline may be applied to the eyelids at night. A physician should always be consulted when any redness or discharge is seen in the eyes.

### General Care of the Eyes

Veils should not be used on an infant's face, as they may injure the eyesight. The sun should never shine directly on his eyes. A parasol with a green lining is the best protection against this danger.

### Care of the Genitals

In girls very little care of the genitals is required other than ordinary cleanliness. The parts should be washed once a day with a piece of lint wrung out of soap and water. After this, they should be dusted with

Boracic acid, ten grains.
Powdered starch and zinc oxide each one half ounce.

With boys a little more attention is required. The foreskin should be stripped back once a day and the parts gently washed with Castile soap and water so as to remove any secretions. After washing, vaseline should be applied. Particular care should be taken to see that the foreskin is drawn forward again; otherwise a serious and painful swelling may result. If these parts are not kept thoroughly clean, secretions may form to such an extent as to act as foreign bodies, drawing the child's attention to the parts and in this way frequently leading to masturbation. Any inflammation or discharge from these parts should be brought to the attention of the physician without delay. (For circumcision, see page 230).

**Care of the Skin**

The skin of the infant is extremely delicate, and great care is required to keep it in a healthy condition. The secret of a healthy skin in an infant is in proper attention to all the little details of a baby's toilet. Too strong a soap should never be used, neither should too vigorous rubbing be indulged in either during or after the bath. The free use of dusting-powder, especially in hot weather, is one of the most successful means of allaying irritation and should be used especially in the folds of the skin, under the arms, behind the ears, and about the neck, particularly in very fat infants. If the skin seems to be unduly sensitive or if slight chafing is present, do not use soap, but instead give a bran- or starch-bath.

**Buttocks**

Great pains should be exercised to see that the diapers when soiled are immediately removed, and the parts washed and well powdered. If any chafing occurs, in-

stead of using water, sweet-oil may be employed on a little absorbent cotton, and the parts should afterwards be powdered with equal parts of zinc-oxide and zinc-stearate.

### Milk in Infants' Breasts

Occasionally young infants have a substance resembling milk in their breasts. The treatment consists in leaving it alone, and it will disappear; it should never be pressed out, as this procedure is very likely to produce an abscess.

### Care of the Hair

In young children there frequently exists a scaly condition of the scalp, and, in fact, in some cases it may persist for months. This "cradle-cap," as it is often called, may be removed by first thoroughly saturating the spot with olive-oil overnight, washing in the morning with warm water and soap, and finally combing thoroughly with a fine-tooth comb.

The hair of a child should be kept reasonably short, as only in this manner can the scalp be kept clean and a good growth of hair assured in later life. Many children who have long hair suffer great discomfort, especially in winter, as they are very apt to perspire at play about the head and neck, and in this way run a great risk of catching cold.

## CHAPTER V

### DENTITION AND CARE OF THE TEETH

A child has twenty milk-teeth, and they make their appearance as follows:

| | |
|---|---|
| 5 to 8 months.... | 2 lower central incisors. |
| 8 to 12 months.... | 4 upper incisors. |
| 12 to 18 months.... | 2 lower lateral incisors and 4 anterior molars. |
| 18 to 24 months.... | 4 canines (the two upper ones known as eye-teeth, and the two lower ones known as stomach-teeth). |
| 24 to 30 months.... | 4 posterior molars. |

This regularity in the appearances of the teeth is by no means constant even in well children. Sometimes upper lateral incisors appear first, and occasionally healthy vigorous children may not have a tooth until the thirteenth or fourteenth month. In delayed dentition the appearance of the teeth is very apt to be out of their regular order.

#### Delayed Dentition

The chief causes of delayed dentition are rickets, malnutrition, or ill health of some kind. Nursing infants usually have their teeth a little ahead of those artificially fed.

#### Symptoms Accompanying Dentition

There is no disease for which dentition has not been held to account. "Is it his teeth, or is it consumption of

the bowels?" "He always cuts his teeth with convulsions or bronchitis"; "I thought it was only a teething-rash," are all common questions and statements of which many of us have grown weary. Dentition is a physiological process and, as such, is nearly always accomplished without any disturbance to the infant's health. On the other hand, it is futile to deny that it may be associated with some pain and slight constitutional disturbance. It is a common mistake among mothers to attribute disturbances of the digestive tract in infants a few months old to teething and to allow the symptoms to go unchecked because of their foolish belief that diarrhea is a favorable condition during dentition. Teething is very seldom responsible for these conditions amongst properly fed children. In fact, as a rule, they cut their teeth without any inconvenience. In a few the process may be accompanied by loss of appetite, irritability and restlessness, slight rise in temperature to about 100 to 101 degrees, slight diarrhea, occasional vomiting and less than the usual gain in weight. One or more of these symptoms may be present, and the child is noticed to drool at the mouth.

**Treatment**

If the baby is breast-fed, he should be given an ounce of boiled water before nursing, and the nursing period shortened; if bottle-fed, dilute the usual formula one half with boiled water. Continue this régime until all the unfavorable symptoms have passed. If, on examination of the mouth, the gums are found to be red and swollen, the part may be gently rubbed with the fingers three or four times a day. Always see that both the finger and baby's mouth are clean before doing this. Very frequently this simple procedure relieves both pain and symptoms.

**Care of the Teeth**

As soon as the teeth appear they require attention. Until the second year is reached, the mouth should be washed. After this, it is well to begin the use of a soft tooth-brush and a simple tooth-powder composed of the following ingredients:

Precipitated chalk, 1 ounce.
Soda bicarbonate, 1 dram.
Oil of wintergreen, 5 drops.

The child should also be early instructed in the proper use of a quill tooth-pick or dental floss.

The age period covered by the present chapter, namely, from the end of the second year to the beginning of the sixth, is of great importance in the life history of teeth. By the end of the second year the baby should have his twenty milk-teeth complete; and they should serve him until the sixth or seventh year, when the first tooth of the permanent set will appear. Therefore, the care of the first teeth is a matter of great importance to the child's health.

The examination of many thousands of school-children in this and other countries shows that nearly all have dental defects. These include decayed teeth, of which it is said that the average school-child has from three to five; protruding teeth; irregular and crowded teeth; malformation of the teeth and gums; and general uncleanliness and unsightliness. The results of these defects are immeasurable, the most immediate being the loss of some part of the power to chew. The human body is built up by the food materials it is able to digest, absorb, and incorporate into its tissues. The first process the food undergoes in digestion is the cutting and grinding that are

given it by the teeth. By this process the food is so subdivided that it is readily swallowed and more easily and completely mixed up with the various digestive juices, the first of which is the saliva of the mouth. If the teeth are too few, or if they are broken, decayed, or otherwise unfit for doing the work of chewing, or if they are so irregular that the grinding surfaces do not meet properly, some of the food will not be properly cut, and other digestive organs will have to do the neglected work of the mouth. Digestion may, therefore, require a somewhat longer time or some of the food may fail to be completely digested. Children who have lost their teeth cannot bite and chew anything but the softest foods, and are likely to limit their diet unduly; and such dietary dificiencies may have a serious effect upon the whole life of the child.

Many forms of illness result from the presence among the roots of decaying teeth of tiny pus-pockets that continually discharge their contents into the blood-stream. Furthermore, there is abundant evidence that the germs of disease, including those of tuberculosis and diphtheria, find lodgment in dental cavities and in irregularities in the teeth; and the neglect of proper cleanliness leads to the possibility of attacks of such illness.

The medical examination of children with bad teeth shows also that they are often affected with adenoids, are below the average in stature, and are very apt to be backward in school.

The care of the teeth is thus not merely a matter of beauty but of profound importance in the whole existence of the child, and to neglect the teeth and to allow bad conditions to develop may mean that he will carry a needless burden of ill health throughout his life.

Children should be taken regularly to a good dentist once or twice a year after the first set of teeth is complete. If cavities appear, they should be filled with soft temporary fillings, and each tooth should be saved as long as possible. If some of the temporary teeth are lost too early, the remaining teeth will be apt to crowd forward into the space thus left vacant; and when the later teeth come they will be pushed out of their regular places, and the natural line will be destroyed. The first molars especially should be preserved, because they furnish the grinding surfaces necessary to proper chewing of food. If they fall out too soon, the child is hardly able to chew anything hard or tough and is likely to swallow such food in chunks.

**Diet and the Teeth**

In order that the child may have strong and healthy teeth, his food must be carefully chosen with that end in view. Great emphasis has already been laid upon the necessity of a well chosen diet of mixed foods, in order that the child may be furnished with all the materials for growth. From such a diet the healthy child should be able to build up sound teeth; but in addition the diet has other important effects upon the teeth. The jaws and the teeth require constant exercise for proper growth and development; consequently, every day the child should have some hard food suitable to his age and development which cannot be swallowed without chewing, such as toast, crusts, and hard crackers, and, as he grows older, broiled, boiled, or roasted meat. The child should be taught to eat his food without much drinking, so that he will be compelled to chew it well in order to swallow it comfortably. A practical way to accomplish this is to

keep the glass of milk or water out of sight until the solid food has been eaten.

Dental decay results from the acids produced by the fermentation of food particles remaining in the mouth after eating. Soft, sweet, sticky, and pasty foods fill the recesses between the teeth or any tooth irregularities, where they readily ferment. For this reason when foods rich in starches and sugars have been eaten alone or at the close of a meal, it is most important to scour the teeth and rinse the mouth with special care. The daily use of some hard foods such as raw fruits like apples or pineapples, celery, toast, and other wholesome but resistant foods, aids in keeping the teeth and mouth clean.

**Cleaning the Teeth**

The baby should be taught the use of the tooth-brush very early; but throughout the whole period of childhood the mother will have to oversee the process, for very few children can be trusted to do it thoroughly. Ideally, the teeth should be brushed after each meal, and especially at bedtime, because fermentation in the mouth proceeds rapidly at night. A narrow brush, with a slightly curved handle, having only two or three rows of bristles set in separate tufts, will make the process of cleaning easier. Any of the simple tooth-powders may be used. Dry precipitated chalk answers every purpose, if it has been very finely powdered.

The child should be taught to brush the teeth downwards or upwards on the outer surfaces, rather than crosswise. When the teeth are brushed across the surface the tendency is to push whatever is on them into the cracks and crevices of the teeth or under the edges of the gums. The inner surfaces of the teeth should also

be brushed up and down, and the tops, which are the grinding surfaces, should be brushed in all directions. After the scrubbing is finished the mouth should be thoroughly rinsed with warm water. Some such regular and thorough method should be insisted upon in order to establish the permanent habit.

**Permanent Teeth**

The permanent teeth begin to erupt about the sixth year and about one year before the temporary teeth begin to fall out. The first of the permanent teeth to make its appearance is the sixth-year molar, which comes in just behind the last molar of the temporary set. Mothers sometimes think because it does not push out another tooth that this is a temporary tooth, and on this account neglect it until in many cases it cannot be saved. As it is with these teeth that most of the hard chewing must be done throughout life, it is the utmost importance to the health of the child that they should be most carefully preserved. The permanent teeth, in the order in which they appear are as follows:

First molars, 5 to 7 years of age.
Central incisors, 6½ to 8 years.
Lateral incisors, 7 to 9 years of age.
First bicuspids, 9 to 11 years of age.
Second bicuspids, 10 to 12 years of age.
Cuspids, 11 to 14 years of age.
Second molars, 11¼ to 13 years.
Third molars, 16 to 21 years or later; possibly never.

There are thirty-two teeth in the permanent set, but these include the four wisdom-teeth, which may not appear until the twentieth year, or in some cases not at all.

## CHAPTER VI

EXERCISE

### In Infancy

The only means a young baby has of taking exercise is by crying, kicking, and waving the arms about; and he should be allowed to indulge in these exercises in order to expand his lungs and develop his muscles.

A good plan is to let the child lie across the bed twice a day for ten minutes with all his clothes removed except shirt, stockings, and napkin. In this way he will have unlimited motion. Even from birth the infant should not be left too long alone but should be occasionally picked up and carried around. This is more especially true of weakling infants. As they are too feeble to take their own exercise they should be picked up more frequently and rubbed two or three times a day with cocoa-butter. All these measures are as necessary to the normal development of an infant as his daily bath and sleep.

### Baskets for Early Exercise

It is a big mistake that is too frequently made to have the infant constantly in the arms, and especially is this the case with the first baby. When the child is held, it is human nature to make him sit on the arm or knee without proper support or even to toss him about or handle him regardless of consequences. At this tender age his bones and ligaments are not in condition to stand

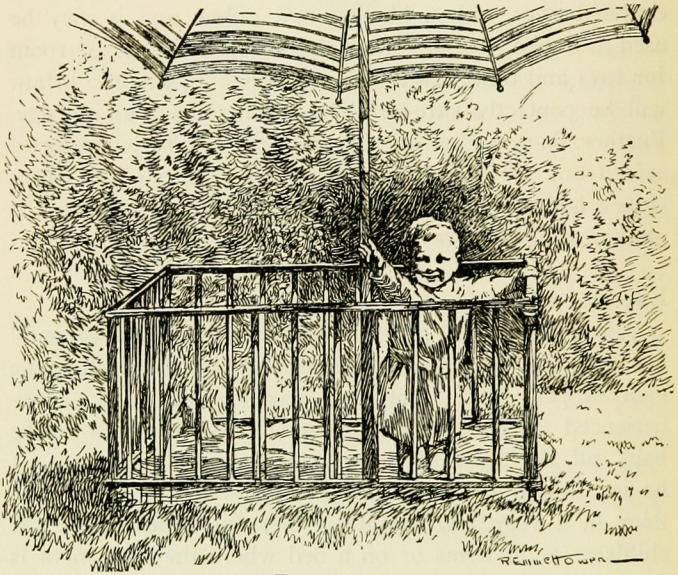
such treatment, and spinal curvature and other deformities are likely to result in later life. If he is urged to stand on the lap, the legs are used more than they should be at this age, and consequently we find bow legs or knock-knees very prevalent.

To obviate all this unnecessary handling, when the infant has reached six months, one can fit up an ordinary clothes-basket with a blanket and pillow and it may be used as a playground. In it there will be plenty of room for toys and other baby requirements. In this the infant will be perfectly safe until he reaches the walking age. Further, in a basket such as this the infant is perfectly safe from the rough play of other children and from stoves and stairs, etc.; and, furthermore, he gives the mother a little more freedom.

**Exercise-Pen**

When the walking age is reached the basket playground has lost its usefulness, and for it is substituted the exercise-pen. All mothers, experienced and inexperienced alike, know how difficult it is to keep a young baby off the floor at the creeping or walking age. If he is allowed to walk he is almost sure to be on the floor in a very few minutes. Yet one cannot have the children in the arms or on a bed where the movement is limited, for it is at this age that exercise is most essential to the growing infant. Where winters are cold young children should not be allowed to play on the floor, because, as we all know, it is at the ground that the cold air currents circulate, and I am certain that many head-colds and their complications have been contracted in this way. It is just at this age, then, that the exercise-pen is useful. The child may be placed in it with his toys in the

morning after his bath and remain there free from danger, yet with plenty of opportunity to exercise his body and legs. Especially in summer are these exercise-pens useful, when the mother may take them to the garden or even to the country; and they can be of inestimable use, especially when the ground is damp.



Exercise pen

Such a pen may be constructed of any size desired, but the most convenient one is four by six feet, made of pine boards in such a way that it can readily be taken apart for traveling or motoring. The legs usually stand one and a half feet off the ground.

### Walking

It is a big mistake to be continually teaching a child to walk; he will do so readily enough when his legs are able to support him, and only harm can come from forcing him too soon.

### Exercise for Older Children

As children grow older they should play more and more out of doors, and every form of exercise should be encouraged, provided it is never so violent or prolonged as to produce exhaustion. It is well to see that strenuous exercise does not directly precede bedtime, as it frequently produces a disastrous night.

In indoor exercise the room should not be warmer than 65 degrees, and it should be seen that the clothing is light and loose.

## CHAPTER VII

### THE CRY

**Crying as an Exercise**

It is well that a growing infant should cry a little every day. The benefit derived from crying is due to the muscular movements involved. The baby should be made to cry every day by slapping him on the buttocks, for, besides his exercise obtained in this way, it keeps the lungs well expanded. In fact, in the newly born it is the cry that expands the lungs; consequently he should be made to cry at this early age several times a day at first. A normal infant should cry from fifteen to thirty minutes in a day.

**Cry of a Normal Infant**

The well baby will cry when frightened or uncomfortable from hunger, soiled napkins, or inflamed buttocks. He cries from pain, from heat, from cold from unsuitable clothing, and during difficult evacuation of the bowels. He also cries when displeased or angry.

**The Cry of Sickness and of Health**

It is not an easy matter to distinguish the cries of an infant, but a person who is constantly with the baby, such as the mother or the nurse, will learn to distinguish between the cry of health and the cry of illness. The cry of pain is strong and loud, usually not continued for any length of time, and is accompanied by other signs of

distress, such as wrinkling of the forehead and drawing up of the legs. The cry of health is vigorous, strong, and loud, and the child gets red in the face. The cry of sickness is feeble and whining, usually prolonged, accompanied by sleeplessness and signs of irritability, especially when disturbed, and ceasing when the child falls asleep from exhaustion. Earache is not an infrequent cause, but with few exceptions the cause of the trouble will be found in the intestinal tract. The well trained normal child whose nourishment is suitable is seldom troublesome.

### The Spoiled Child

When well, all babies are naturally good-natured and happy in their own way. Badly managed and spoiled infants often cry vigorously when left alone, but when attention is given to them and they are taken up or talked to, the crying ceases. In this type of child discipline and not medication is the treatment. The habitual criers have a restless and vigorous cry; whining infants are uncomfortable, and the management consists in relieving the condition that causes the discomfort, such as soiled diaper; in the case of habitual criers the most rigid discipline should be followed.

### Night Crying

When an infant cries at night, one should see that he is not hot or cold, and, if necessary, change his diaper. It is exceptional that a healthy infant cries solely on account of a soiled diaper, the cause usually being digestive. In this instance one would be safe in giving a laxative and, on the following day, reducing the food and give lots of water.

This type of crying is very often heard in young infants who cry to be rocked, to be picked up, for a light in the room or a bottle to suck, or from any other bad habit that the indulgent mother or grandparent has taught the child.

### The Size of the Cry and Tears

Between three and four months the normal infant should shed tears. Their disappearance during an illness is not a favorable sign.

### The Significance of the Cry

People are prone to refer to the diagnostic value of the infant's cry. This is not warranted, and certainly too much dependence on the cry is not warranted in distinguishing the type of disease that the infant may be suffering from.

## CHAPTER VIII

### SLEEP

The infant that sleeps well is almost always a normal, well fed baby; and sleep is, therefore, a good guide as to the child's physical condition. The sleep should be quite regular, and any signs of prolonged restlessness usually mean some disorder, probably digestive, as this is the most frequent cause of disturbing sleep in infancy. Although a young infant's sleep should be quiet it is not very deep, and it is not till after two years of age that a child sleeps heavily.

**Preparation of the Child for Sleep**

The baby should be undressed and prepared for bed and the diaper changed before giving the bottle, and, immediately after feeding, the baby should be laid down, the room having been darkened and properly ventilated. He should never be placed on his back to sleep even when awake unless some one is constantly present, because, if an attack of vomiting were to occur, the chances that matter would get into the windpipe would be great. Furthermore, it is essential that the baby sleep alone from the first, as there is every danger of overlying and of too frequent nursing. Besides, it deprives the attendants especially the mother, of much needed sleep. Older children should always have separate beds, not only to insure good sleep but as protection from infection, such as head-colds, bronchitis, and other infectious

diseases. The child should learn to go to sleep by himself. All pernicious habits, such as rocking, patting, or the giving of a pacifier or finger to suck, should be prohibited at the outset, for as the child grows older any habits formed are harder to break, with a result that there is no end of trouble in the household. If he is restless and refuses to sleep, then there is some good reason for it, and this must be found out and remedied. Nothing else will produce any lasting results but will only be conducive to bad habits. Drugs or soothing-syrups should not be tolerated.

**Amount of Sleep Required During Infancy**

During the first few days after birth sleep should be almost continuous, except when the infant is being fed. During the first month the child should have twenty-two hours sleep out of the twenty-four, and during the second and third months twenty hours. At the sixth month a healthy baby should sleep from six at night till six the following morning, being wakened for feeding and change of diaper at ten o'clock. In addition to this twelve hours' night sleep the infant should have a nap of two hours in the morning and two hours in the afternoon. Always see that the afternoon nap is over by three o'clock; otherwise it will be difficult to get the child to sleep at night. From now on the day naps may be gradually shortened till at one year the child sleeps one hour in the morning and two in the afternoon, and at eighteen months the morning sleep is given up. Not a few infants form bad habits of sleeping in the daytime and being wakeful at night. This is best remedied by keeping the baby awake when he should be, during the day, by entertainment and by keeping him in a well lighted room.

### Amount of Sleep Necessary after Two Years

The twelve-hour night rest should be continued until the child is six years of age, and, furthermore, an afternoon nap of from one and a half to two hours should be insisted on, and even longer if the child is inclined to be delicate.

### How to Manage a Crying Infant

It is not unusual for an infant to cry for a few minutes after being put to bed. This is exercise, and, unless it is prolonged, no notice should be taken of it. It is a great mistake to pick up a baby as soon as he wakes and cries at night, for if left alone he will invariably go to sleep. If the crying is prolonged, see if the diaper is wet and the feet cold. Very often simply turning the baby over will be quite sufficient.

### Causes of Sleeplessness

The following may be the causes of wakefulness or bad sleeping in an infant:

1 Bad or irregular habits.
2 Bad air.
3 Insufficient or excessive clothing.
4 Too much excitement previous to bedtime.
5 Soiled diaper or cold feet.
6 Thirst.
7 Hunger, especially in a breast-fed baby.
8 Indigestion due to improper food or to irregular, excessive, or insufficient feeding.
9 Dentition.

In older children the following may be the causes:

1 Anæmia.
2 Malnutrition, due to improper feeding.

3 Tonsils and adenoids, producing snoring, cough, and disturbed sleep and startling spells.
4 Hip-disease.
5 Any other sickness.

It is always wise to consult a physician when any of these symptoms are noticeable.

### Quietness

The baby's room should never be noisy, yet whispering or any unnecessary precaution to quiet the room should not be necessary. An infant readily accustoms himself to ordinary household noises, unless they are sudden or loud, such as the banging of a door or a scream.

### How to Insure Good Sleep

In order to insure good sleep, the infant must, primarily, be well trained and not a spoiled child; that is to say, he must learn early to know that when he cries he is not going to be picked up, patted, and so forth to his heart's content. Furthermore, it should be seen that his diet is properly regulated for his age, that his feeding hours are regularly adhered to, and that no eating or drinking, except water, should be permitted between meals. Plenty of fresh air should be allowed and the sleeping apartments darkened. A warm sponge or tub-bath before bedtime almost always insures a good sleep, provided there are no other disturbing factors. It should also be seen that no excitement of any kind take place previous to the child's sleeping-hour.

In the case of older children, especially those who are at all highly strung, no night studies should be permitted; but, instead, there should be plenty of exercise in the fresh air.

## CHAPTER IX

### AIRING

Fresh air is an essential to the growing infant and child as is a properly regulated diet. In order that the lungs and blood may be purified, an abundance of fresh air is necessary, and, furthermore, it must be given judiciously; otherwise the well meant "outdoor" treatment may act only to the child's detriment. Children who are kept too closely housed in overheated and badly ventilated rooms are deprived of or given insufficient outdoor air and exercise, and are bound to suffer as a result. They lose their appetite, become pale and anæmic, sleep badly, and catch cold readily.

**When to Commence Indoor**

The infant should always be gradually accustomed to airing, and the best way to commence is by airing the room thoroughly at least twice a day and oftener if possible. But during the process the baby should be removed to another room and brought back when the room has attained its proper temperature. At one month of age, provided the child is strong and vigorous, even in cold weather, he may have a regular indoor airing. These periods may be gradually lengthened each day, day by day fifteen or twenty minutes until four or five hours has been reached. It is well to reduce this time in raw damp weather.

### How to Give Indoor Airing

The child should be dressed as if for the street, placed in his carriage, and wheeled into a room with the windows wide open from the top to prevent draught, and the door closed. This should be done morning and afternoon until he has received his full quota of fresh air.

### When to Commence Giving Outdoor Airing

A baby one week old may be taken out in the fresh air in summer heat, but in spring and autumn never until at least one month of age. In winter when four months of age he should be taken out only on pleasant days, and in the sun and away from the wind.

### Hours and Seasons for Outdoor Airing

In the summer and early autumn a child may be out any time between 7 A. M. and sunset, in winter and the early spring he may be out from eleven to three o'clock, as this is the warmest part of the day. In midsummer on hot days his outings should be taken in the early morning and in the evening; he must, however, never be kept out after the dew has begun to fall. In the heat of the day he is better off on a cool veranda. In certain parts of the country there are many days below 20 degrees (Fahrenheit), and on these occasions the airing may be given indoors.

### Sleeping out of Doors and Outdoor Exercise

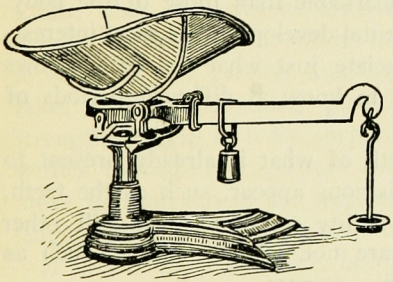
A child more than one year old, provided he is properly protected, may run about in almost any weather, if he is in good health. A healthy baby may be trained to have his daily naps out of doors in summer, but care should be taken that he be properly sheltered from the wind and that his carriage be provided with mosquito-netting.

### Precautions Necessary

The light should never shine directly on the baby's face; a shade or parasol with a green lining will prevent this. Serious injury to the eyesight may result if this precaution is not observed. Always see that the baby's hands and feet are warm; but on the other hand do not over-wrap him and cause him to perspire, as he will surely catch cold. The only times when it is not advisable to send a well baby over four months old outdoors are days when it is foggy or very windy, or when it is raining or snowing or the temperature is below 20 degrees, or even if it is cloudy and there is much melting snow on the ground.

### Scales for Weighing

A scale for weighing the baby is a very necessary adjunct to the nursery equipment. There are many varieties on the market known as "baby-scales." The majority of them are spring-scales with basket attachment and dial indicators; this type is very unreliable and should not be used. The ordinary grocer's scale, with a tin or brass scoop, and weighing from twenty to thirty pounds, is the most satisfactory. The infant lies in the scoop attachment. The scale should be marked off in ounce and half-ounce graduations.



## CHAPTER X

### GROWTH OF THE INFANT[1]

Fortunately, the baby grows; for, charming as it is in its early helplessness, how much more delightful to watch the development of its beauty, strength, and intelligence! What mother will forget her happiness at the baby's first tooth, its first step, and its first word!

**Growth of Mind and Body**

But all this progress comes only gradually. It is bit by bit that the child grows. By growth here is not meant increase in size and weight alone, important as these are. The baby's mind steadily grows, and the changes in it are even more remarkable than those of the body. The watching of this mental development is most interesting, if we really appreciate just what the baby knows and just what it ought to know at different periods of life.

Besides all this growth of what is already present to some extent, new acquisitions appear, such as the teeth, tears, saliva, and the ability to walk; and still other changes go on which are not actually visible, such as alterations in the digestive powers.

**Early Movements Automatic**

When the baby is just born, and during the first few

[1] From "Care of Baby," by J. P. C. Griffith, with permission from the author and publishers, W. B. Saunders Company.

days of life, it is very little more intelligent than a vegetable. Its soul and its intellect are there, but they are dormant, waiting to be awakened. It has also little control over its body, and all its movements are automatic or instinctive. Probably there is not a single expression of the face or motion of the arms or legs that represents a distinctly willed action. Supported in the arms, the child cannot hold its head upright, but lets it roll from side to side, as though in danger of snapping it off. It lies just as it is placed in bed, entirely unable to change its position. A new-born baby probably cannot see, except to distinguish light from darkness, and will not wink when the finger is brought close to its eyes. It seems also unable to hear, and its sense of smell is but slight, although taste is well developed. It is, in fact, not directly conscious of anything. When it nurses at the breast it does not know it is nursing, and when it cries it is ignorant of any sensation that makes it cry. Later, when it moves its arms and legs strongly during nursing, or when it throws its head back or lifts its hand in response to a forcible touching of its nose, or when it takes hold of anything placed in its palm—and its strength of grip is truly surprising—it is not because it wishes to express eagerness for anything to eat, or to move its head out of the way, or to close its fingers, but simply because it cannot help it.

It is not long, however, before an interesting change begins. There is seen a distinct increase in the power of control over the members. By the time the baby is three months old, or sometimes a little before this, it gradually begins to make efforts at grasping after objects, although totally unable to judge whether they are near or far away; and by six months it can make many well directed move-

ments and will play with toys. Before the age of two months the baby has evidently gained considerable power in lifting its head, and by that of three or four months it can hold it without support very well. It usually does not attempt to maintain a sitting position until it is between three and four months old, and does not succeed in doing so unsupported until at least six months old. Even then it is not very steady, and is easily upset until the age of nine or ten months.

At about six months the baby will sometimes make an effort to stand, if held upright on its feet in the mother's lap, and will try to put one foot in front of the other. At seven or eight months it begins to creep on its hands and knees, and by nine or ten months of age it is often able to stand with support, and frequently to walk some steps by holding to the furniture or to some one's hand. By the age of one year strong children can walk a little without help.

### Creeping and Walking

There is no absolute rule, however, for the time or for the exact order of learning to creep and to walk. Many children are very slow in walking, particularly if they have become expert and rapid crawlers, while some do not creep at all but learn first to stand and then to walk. Some creep only on the hands and feet, never using the knees; others never creep, but progress over the floor with a peculiar pushing movement while in a sitting position. A mother should be in no hurry about the walking. Fifteen to eighteen months is really quite early enough, and some children do not learn until two years of age, and yet are perfectly healthly. Nevertheless, a delay as great as this cannot but lead to the suspicion

that something is wrong with the child's development.

It is a curious observation that when babies fall during their early efforts at walking, they nearly always go backward into a sitting position; this is due to the fact that the muscles of the front of the leg have not yet become so strong as those of the back. Every child also naturally walks "pigeon-toed," and the learning to turn the toes out is always a slow matter and should not be hurried.

With increasing power and control of motion there is a development of the senses also. By the age of six weeks or earlier the baby can fix its eyes upon objects near it and will quickly shut them if something is moved rapidly toward them, and by the age of two months its vision is nearly perfect. However, although able to see, the infant cannot well manage the motions of its eyes at this period, and there is a great tendency for it to look cross-eyed, while colors probably cannot be distinguished at all until the age of a year; and the color-sense even after this increases slowly in many children. Hearing and the sense of smell develop rapidly, and within the first week the baby will be awakened by loud or shrill noises; but it does not begin to notice the character and the direction of sounds until it is three months old. Musical tones are sometimes recognized between the ages of one and two years, or very occasionally earlier than this, and a child of two or even less may distinctly prefer one tune to another, and perhaps know it by name. In other instances, however, the power to recognize a tune does not come until later childhood, and sometimes never. Things are made up to the baby later in early life, since a child of ten years both sees and hears better than an adult.

It would be interesting to know what a baby's sensa-

tions are in its early months of life, but we can discover this only to a limited degree. It probably feels pretty comfortable, on the whole, and when uncomfortable it cries. It experiences hunger and the inclination to sleep. By the time it is a month old it often shows its pleasures by smiling, but it generally does not really laugh until five or six months of age or even older. Smiles before the age of one month are usually not indicative of pleasure but belong to the class of automatic and similar movements already referred to.

### Intelligence Appears

The child clearly begins to have more intelligence, and the pleasure that accompanies intelligence, when it is three months old; and by this time it shows distinct evidence of having a mind and of exercising some thought. By this age or a little later it learns to recognize its mother and to be pleased at her approach, and, if hungry, will cease crying when it sees her preparing to nurse it. It also enjoys bright objects, especially if they are moving before it. Even before the age of three months, however, it seems to appreciate in some way the difference in the handling of it by different persons, and is soothed by some and not by others. Often, too, crying may be checked by taking the child up, or brought on by laying it down, showing that it is cognizant in some way of what is done to it and has some desire in the matter. Between three and four months of age the baby begins to look about it more, to feel the pleasure of grasping after objects, and to show fear and wonder. When it is four or five months old, it learns to recognize other friends and to smile and move its arms at them. When nine months old it, will give its hand when requested, and will

thoroughly enjoy a game "peck-a-boo." By the completion of its first year it has learned to show distinctly, by expressions of face and by gestures, its likes and dislikes for the person and acts of others. Between the age of one and two years the baby shows some idea of number.

**Early Sounds**

All sounds made early in life are impulsive only. Although the child at one or two months of age begins to use its voice in making peculiar cooing noises expressive of comfort and happiness, it does not, of course, will to utter these particular sounds rather than others. About the age of six months the baby commences to make different vowel sounds, especially that of "ah," and a little later it learns to prefix these with some consonants as m, b, d, n, j, these being the easiest ones to pronounce. The mother often now firmly believes that the baby means herself when it makes the sound of "ma-ma," but this is not the case. The child is only expressing some pleasurable emotion in this way.

But with growing power the distinct imitation of sounds soon comes. By the age of eight or ten months the child utters several syllables intelligently, and when it is a year old it can say "papa" and "mama," and maybe some other words, and really means what it says. Very often it acquires the understanding of certain words before it learns to speak even in syllables. At eighteen months of age it can express many of its desires by the use of a few words aided by gestures, and by two years it can speak in short sentences, although its vocabulary is, of course, very limited.

We can, perhaps, best consider here the growth of

control over some of the functions of the body; namely, the movements of the bowels and the passage of urine. A great deal will depend upon the training, but all children should gain complete control by the age of two years as an extreme limit, and most of them acquire it before this and need a diaper only during the night, if at all. Some who have been carefully taught have gained almost entire control during the daytime when little more than three months of age.

### Baby's Growth

We have yet to study the baby's growth in bodily proportions. There have been very many estimates made of the average height and weight of children at different ages, and there has even been constructed an elaborate algebraic formula for calculating what these should be. The truth of the matter is that the variation is too considerable to allow of any iron-bound statements regarding it. The table at the end of this chapter is an approximation of the length and weight that children should exhibit from birth up to fourteen years of age; those for infancy applying to normal breast-fed babies. Bottle-fed babies are usually somewhat less advanced.

Looking closely at the table, we notice several interesting facts. We see that the baby usually loses weight during the first week and often longer, but that by the end of two weeks its weight is greater than the table shows, for by the age of one week the baby has regained most of the loss. As a rule, a child loses in the first three or four days about one fifteenth of its initial weight. To this rule there are many exceptions, since children sometimes grow steadily heavier from the beginning.

During the last three weeks of the first month the

baby gains about one ounce a day; in the second month, about one ounce a day; and in the third and fourth months, about five and one half ounces a week; that is, about three quarters of an ounce a day. By the time it is five months old it has doubled its original weight. In the fifth and sixth months it increases two thirds of an ounce a day, and after this, from seven to twelve months, it gains at the rate of about one pound a month—that is, three and two thirds ounces a week, or a trifle more than half an ounce a day—except in the ninth, and again in the eleventh month, when the increase in weight often lessens somewhat. At the age of a year the baby has trebled its original weight.

As to length, we are struck by the fact that from the age of two to that of four months the increase is one inch a month, and after this, up to one year, it is half an inch a month.

After the first year we notice that, taking it all together, there is a gradual increase in the number of pounds and and a decrease in the number of inches added yearly, four inches being gained in both the second and third years, three inches in the fourth and fifth years, and after this two inches a year. The gain in weight is four pounds yearly from the age of three to that of seven years, then five, then six, and then about nine pounds. It sometimes happens that at about the age of nine in girls and eleven in boys there is almost a cessation of growth for a short time. Later, at about twelve years, girls take on a particularly rapid growth and decidedly exceed boys of the same age in weight, and sometimes in height, also. At fifteen and sixteen years the rapidity of growth in girls, both in weight and height, will be greatly diminished, while boys of this age will often develop very rapidly, and

will soon materially exceed the other sex in both respects. These times for the retardation and acceleration of growth vary greatly, however, in different children. No fixed rule can be formulated.

The weights and measurements in the table apply fairly well to children of both sexes, although it is a fact that boys at birth are apt to be somewhat larger and heavier than girls, and to continue so until the neighborhood of twelve years. A child may measure or weigh somewhat less without giving any occasion for anxiety if it is perfectly healthy, while it may decidedly exceed the figures without being phenomenal. This is especially true of children who have passed the age of three or four years. We all know how great the variations in size are in early and later childhood. When, however, it is an infant that is materially behind in its height and weight, the mother should at least have her suspicion aroused that something is wrong.

### Weekly Weighing

The weekly weighing of the baby is exceedingly important in order to make sure that growth is going on properly. But to obtain results at all accurate it is very important that the baby be weighed without clothes, or, equally good, that it be weighed when dressed and that the weight of the clothes or of a similar suit be ascertained afterward and the amount deducted. It will not, of course, be necessary to weigh the clothes separately on every occasion if we are careful that they are always of the same sort. Systematic weighing is particularly important when some change in diet is being made, for we can determine in this way whether the food is sufficiently nourishing in quality or great enough in quantity.

With spring-scales the results are by no means so accurate as with balance-scales in which weights are used. With either form the scoop may be removed, if it is too small as the baby grows, and a flat board or split-wood fruit-basket attached in place of it, balancing this properly to allow for the difference in weight. Whatever apparatus is employed must show variations in weight down to a half-ounce. Those having markings of only a quarter of a pound or more are useless for the purpose. In using the steelyard the child is pinned securely in a towel or opened diaper, and this is hung on the hook. In weighing children of five years and older the clothes may be assumed roughly to be one twelfth of the total weight of the child when dressed.

To measure the baby's length, the baby may be held against the wall with its heels resting upon the floor, and the height be marked above it. A much more convenient and correct method is to have a carpenter construct an apparatus like an enlarged foot-measure of the kind employed by shoe-makers. This is used when the child is lying on a firm bed, the end-piece being placed above its head and the sliding one moved along until the feet (both toes and heels) rest upon it.

At the age of thirteen or fourteen years, the time of puberty, a decided change takes place in girls, the figure beginning to assume that of womanhood, and the menstrual discharge appearing; while at about the same time or a little later boys experience a change of voice.

Besides the growth in height and weight, there is, of course, increase in girth as well. The matter of most importance here is the circumference of the head and that of the chest. We should know what these ought to be at the different ages, for the proper increase of girth

of chest is an indication of proper development, and variations from the normal size of the head may indicate disease.

The table shows approximately the circumferences of the chest and of the head at different periods of life. It is interesting to observe from the table how much more rapidly the chest grows than the head. It is important, however, to remember that the heads of different babies vary much in shape and size within the normal limits. The chest-measure should be taken just above the nipples, and that of the head a little above the level of the eyebrows.

In this connection we must not forget the condition of the anterior fontanelle. This opening grows no smaller, and even increases in size up to the age of nine months. After this it becomes steadily smaller by the growth of bone around it, and it should be entirely closed in healthy children by the age of seventeen or eighteen months.

Finally, we must consider some of the new acquisitions of the child in the line of development. Among these is the ability to shed tears, which has already been referred to. A new-born baby can cry, and its eyes become moist; but it is generally not until the age of three or four months that tears actually run down its face.

Another acquirement is the new head of hair that follows the first one. At about the end of the first week the first hair begins to fall out, and it continues to do so for one or two weeks. A considerable amount of it, also, is worn away from the back of the head by friction upon the pillow. The new hair begins to grow in very slowly, and it is of the same soft, silky texture as the first,

but lighter in color than it was, or than the hair will be in adult life. Indeed, throughout the child's life, leaving the first hair out of account, there is a tendency for the color of the hair to grow constantly darker. The speed with which the hair grows is variable. One may sometimes see a child of five months with its head actually shaggy, but as a rule it is very thinly covered at this age and for months after it. Sometimes children are born with remarkably shaggy heads of hair and do not suffer the loss of it.

### New Powers of Digestion

Then, too, the baby acquires increased powers of digestion not possessed before. Saliva is one of the secretions of value in the digestion of starch. In early life it is only sufficient in amount to keep the mouth moist, but at the age of three or four months it has increased so greatly that the baby begins to dribble and must have its clothing protected by a bib. Many people suppose that this dribbling is a sign of irritation produced by the cutting of teeth, but, although it usually accompanies teething, it is really only the evidence of the acquisition by the child of the new secretion. Indeed, there is no excessive production of saliva at the time when the teeth that one would suppose were the hardest to cut—the molars—come through the gums. There is certainly no connection between healthy dentition and the flow of saliva.

So, too, the secretion of the stomach, generally called the gastric juice, is poorly developed in young babies, and the digestive strength of the juices of the pancreas and of the intestine is also very weak; but all these in-

crease with advancing age. On the other hand, the movements of the stomach are remarkably active in babies, and we consequently often see regurgitation of food occurring daily.

Finally, let no mother conclude offhand that the statistics that have been given are incorrect because they do not accord with her experience in the case of her own children. They are average only, and are the result of much and careful study by different observers. Of course, some children are much ahead of the average, and others behind it, yet they are nevertheless neither remarkable nor unhealthy.

### Weight

During the first year a careful record of the weight is almost indispensable; throughout childhood it is of much interest and is the best guide to the child's physical condition. It will certainly repay any mother or nurse, as well as the physician, to see that a careful record is kept. The infant should be weighed once a week during the first six months; after that, once a month is quite sufficient. Most mothers expect infants to gain six or eight ounces a week during the first year, which often leads to overfeeding. Some perfectly well, vigorous babies increase in weight slowly, usually three, four, or five ounces, and for this reason a comparison of weight-charts with one's neighbor should not be tolerated. Especially is this so because no two babies gain alike, and a mother should not be discouraged when her baby does not gain in weight according to the schedule. Bottle-fed babies, if slow in gaining weight, are apt to be overfed, with the result that they are upset. Finally, a comparison of weight-charts usually causes one mother or

the other to worry, because the weight is not up to that of her neighbor. At times, especially in hot months, some babies, even though healthy, do not gain an ounce. This is more especially so in July and August. On the other hand, infants convalescing from illness, or being put on proper diet, may gain as much as a pound a week to make up, so to speak, for lost time. A continuous increase of seven to eight ounces a week is very likely to lead to trouble sooner or later. Weight increase is often arrested by trifling circumstances of health, such as head-colds, cough, constipation and any serious constitutional disease.

### Bottle Babies' Weight

Artificially fed babies after the first month gain just as rapidly as those that are nursed, and during the latter half of the first year the increase will be more continuous than in the nursing infant, because the latter loses weight during weaning.

In all babies during the first week there is only a slight loss of from six to eight ounces, and after this the gain is from four to eight ounces for the first six months, and, from then on to the first year, from two to four ounces a week.

WEIGHT OF AVERAGE NORMAL CHILD

| | |
|---|---|
| Birth, 7¼ pounds. | |
| 1 week, 6¾ pounds. | Loss due to the fact that infant's stomach has not become accustomed to cow's milk. |
| 10-14 days, 7¼ pounds. | Birth weight regained. |
| 1 month, 8¼ pounds. | |
| 2 " 10½ pounds. | Gain 6½ ounces a week. |
| 3 " 12 pounds. | |
| 4 " 13½ pounds. | |
| 5 " 14½ pounds. | Gain 4¼ ounces a week. |
| 6 " 15½ pounds. | |

| | | | |
|---|---|---|---|
| 7 | " | 16½ pounds. | |
| 8 | " | 17¼ pounds. | Gain of 3 ounces a week. |
| 9 | " | 18 pounds. | |
| 10 | " | 18¾ pounds. | |
| 11 | " | 19½ pounds. | Gain of 2½ ounces a week. |
| 12 | " | 20 pounds. | |

## TABLE OF AVERAGE WEIGHT AND HEIGHT, HEAD AND CHEST MEASUREMENTS

HOSPITAL FOR SICK CHILDREN, TORONTO

| | Boys | | | | | Girls | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Weight in pounds | Average gain in ounces per week | Height in inches | Chest in inches | Head in inches | Weight in pounds | Average gain in ounces per week | Height in inches | Chest in inches | Head in inches |
| Birth | 7.55 | | 20.6 | 13.4 | 13.9 | 7.16 | | 20.5 | 13.0 | 13.5 |
| 3 mos. | 11.8 | | 23.5 | | | 11.3 | | 23.2 | | |
| 6 " | 16.0 | 5.2 | 26.5 | 16.5 | 17.0 | 15.5 | 5.13 | 26.0 | 16.1 | 16.6 |
| 9 " | 18.0 | | 27.6 | | | 17.5 | | 27.0 | | |
| 1 yr. | 20.0 | | 28.8 | 18.0 | 18.0 | 19.5 | | 28.2 | 17.4 | 17.6 |
| 1 " 3 " | 22.0 | | 20.9 | | | 21.5 | | 29.4 | | |
| 1 " 6 " | 24.0 | 2.46 | 31.0 | 18.5 | 18.5 | 23.5 | 2.46 | 30.6 | 18.0 | 18.0 |
| 1 " 9 " | 25.3 | | 31.9 | | | 24.8 | | 31.4 | | |
| 2 " | 26.5 | | 32.8 | 19.0 | 18.9 | 26.0 | | 32.2 | 18.5 | 18.6 |
| 2 " 6 " | 29.0 | 1.54 | 34.3 | | | 28.5 | 1.54 | 33.8 | | |
| 3 " | 31.0 | | 35.7 | 20.1 | 19.3 | 30.5 | | 35.2 | 19.8 | 19.0 |
| 3 " 6 " | 33.0 | 1.23 | 37.0 | | | 32.3 | 1.17 | 36.5 | | |
| 4 " | 35.0 | | 38.2 | 20.7 | 19.7 | 34.3 | | 37.7 | 20.7 | 19.5 |
| 4 " 6 " | 37.0 | 1.23 | 39.4 | | | 36.1 | 1.17 | 39.0 | | |
| 5 " | 39.0 | | 40.6 | 21.5 | 20.5 | 38.0 | | 40.2 | 21.0 | 20.2 |
| 5 " 6 " | 41.0 | 1.23 | 41.7 | | | 39.8 | 1.14 | 41.3 | | |
| 6 " | 43.0 | | 42.8 | 23.2 | | 41.6 | | 42.3 | 22.8 | |

[OVER]

## TABLE OF AVERAGE WEIGHT AND HEIGHT, HEAD AND CHEST MEASUREMENTS

HOSPITAL FOR SICK CHILDREN, TORONTO

| | Boys | | | | | Girls | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Weight in pounds | Average gain in ounces per week | Height in inches | Chest in inches | Head in inches | Weight in pounds | Average gain in ounces per week | Height in inches | Chest in inches | Head in inches |
| 6 yr. 6 mos. | 45.2 | 1.29 | 43.9 | | | 43.4 | 1.11 | 43.3 | | |
| 7 " | 47.4 | | 45.0 | 23.7 | | 45.5 | | 44.5 | 23.3 | |
| 7 " 6 " | 49.5 | 1.32 | 46.0 | | | 47.7 | 1.32 | 45.7 | | |
| 8 " | 52.0 | | 47.4 | 24.4 | | 50.1 | | 46.7 | 23.8 | |
| 8 " 6 " | 54.5 | 1.54 | 48.8 | | | 52.5 | 1.47 | 47.7 | | |
| 9 " | 57.0 | | 49.4 | 25.1 | | 55.0 | | 48.7 | 24.5 | |
| 9 " 6 " | 59.6 | 1.57 | 50.0 | | | 57.4 | 1.51 | 49.7 | | |
| 10 " | 62.5 | | 51.0 | 25.8 | | 60.2 | | 50.7 | 24.7 | |
| 10 " 6 " | 65.4 | 1.78 | 51.9 | | | 62.9 | 1.69 | 51.7 | | |
| 11 " | 68.0 | | 52.7 | 26.4 | | 66.1 | | 52.7 | 25.8 | |
| 11 " 6 " | 70.7 | 1.63 | 53.6 | | | 69.5 | 2.03 | 53.8 | | |
| 12 " | 73.7 | | 54.5 | 27.0 | | 74.1 | | 54.9 | 26.8 | |
| 12 " 6 " | 76.9 | 1.91 | 55.4 | | | 78.7 | 2.83 | 56.1 | | |
| 13 " | 80.8 | | 56.5 | 27.7 | | 83.7 | | 57.3 | 27.4 | |
| 13 " 6 " | 84.8 | 2.43 | 57.5 | | | 88.7 | 3.08 | 58.5 | | |
| 14 " | 90.0 | | 58.8 | 28.8 | | 93.5 | | 59.5 | 28.0 | |

WEIGHT

*Initial Loss*

1 to 3 days 9.5 ounces.

*Breast Babies*

Regain birth weight on the tenth day.

*Bottle Babies*

After initial loss remain stationary.

*Most Rapid Gain*

1 to 3 months.

HEIGHT

*Most Rapid Gain*

During first year (8 inches). During second year (3.5 inches).

*Later Gain*

Until the eleventh year, 2 to 3 inches a year.

*Irregularities*

(a) Heredity.
(b) Rachitis.

ABDOMEN

Circumference at Umbilicus.

*Throughout Infancy*

Same as chest, less than head.

*End of Second Year*

Same as chest and head.

*After Second Year*

Chest increases much more rapidly.

[OVER]

### Weight

*Slowest Gain*

6 to 9 months.

*Illness*

Gain in weight retarded, ceases, or there is a loss out of proportion to severity of the illness.

*Birth Weights*

Above or below average; may remain above or below average throughout the first year.

### Height

*Growth of Extremities*
(As compared with trunk)

(a) At birth, 43 per cent of length of body.
(b) At five years, 54 per cent.

Effect of malnutrition upon the length of the body is much less than on the weight.

### Abdomen

*Capacity of the Stomach*
(To fourteen months)

| | | |
|---|---|---|
| Birth | 1.20 | ounces |
| 2 weeks | 1.50 | " |
| 4 weeks | 2.00 | " |
| 6 weeks | 2.27 | " |
| 8 weeks | 3.37 | " |
| 10 weeks | 4.25 | " |
| 12 weeks | 4.50 | " |
| 14 to 18 weeks | 5.00 | " |
| 5 to 6 months | 5.75 | " |
| 10 to 11 months | 8.14 | " |
| 12 to 14 months | 8.90 | " |

## Teeth

### Deciduous or Milk Teeth
(20 in number)

*Average Time of Eruption*
(Varies greatly)

| | |
|---|---|
| Two lower incisors | 6 to 9 months |
| Four upper incisors | 8 to 12 " |
| Two lower lateral incisors | 12 to 15 " |
| Four anterior molars | 12 to 15 " |
| Four canines | 18 to 24 " |
| Four posterior molars | 24 to 30 " |

*A Child Should Have*

| | |
|---|---|
| At 1 year | 6 teeth |
| At 1½ years | 12 " |
| At 2 years | 16 " |
| At 2½ years | 20 " |

### Permanent Teeth

*Average Time of Eruption*

| | |
|---|---|
| First molars | 6 years |
| Incisors | 7 to 8 " |
| Bicuspids | 9 to 10 " |
| Canines | 12 to 14 " |
| Second molars | 12 to 15 " |
| Third molars | 17 to 25 " |

## Muscular Development

### Normal Average Appearance of Functions

| | |
|---|---|
| First voluntary grasping of an object | 4 months |
| Hold head erect | 4 " |
| Sit erect | 7 " |

## Speech

### Time of Development
(Varies greatly)

Girls talk from two to four months earlier than boys.

Towards end of first year, single words.

Towards end of second year, sentences, two or three words.

After second year, improvement very rapid.

### Order of Development

(a) Names of persons.
(b) Names of objects.
(c) Verbs.
(d) Adverbs.
(e) Adjectives.
(f) Conjunctions.
(g) Prepositions.
(h) Articles.
(i) Personal pronouns.

## Special Senses

### Sight

| | |
|---|---|
| Infants avoid light during first few weeks | Birth. |
| Cornea slightly sensitive in new-born. | |
| Eyes follow light | sixth day. |
| Eyes coördinate | third month. |
| Objects recognized | fifth to sixth month. |

### Muscular Development

| Normal Average Appearance of Functions | |
|---|---|
| Bear weight on feet | 9 to 10 months |
| Stand on feet | 10 to 11 " |
| First attempt at walking | 12 to 13 " |
| Walk freely | 14 to 15 " |
| Variations in appearance of ability to walk (normal) | 10 to 18 " |

### Special Senses

#### Hearing

Deaf 24 hours.

Acute at end of 5 to 7 days.

Turn head towards sound 2 to 3 months.

Recognize familiar voices 3 to 5 months.

#### Touch

Not highly developed except lips and tongue Birth.

Acute all over body 3 months.

Localization of sense impressions 5 to 6 months.

Temperature sense developed early.

#### Taste

Highly developed at birth.

#### Smell

Developed later than other senses.

# CHAPTER XI

## BREAST FEEDING; MIXED FEEDING

### Nursing *vs.* Bottle Feeding

Every mother with few exceptions should at least make an attempt to nurse her infant, because there is no perfect substitute for breast-milk, however scientifically concocted or modified. Furthermore, the mortality of breast-fed babies is fully one third less than that of artificially fed infants. Happily, ideas are changing rapidly in this growing world of ours, and especially is this change noticeable among the younger generations of mothers, who are learning that in order to protect their infants from disease and to make them grow into healthy adults, it is essential to nurse them. The statement made a decade ago to the effect that the percentage of nursing mothers among the well-to-do was small is now being contradicted, for within this period there has been a pronounced change for the better. In fact, with women properly educated and in good physical condition, fully 75 per cent can nurse their infants. One well known authority states that "100 per cent of women, even the flower and fashion of the land, can nurse their children."

The change that enables more mothers to nourish their infants properly and successfully is due to two things; more vigorous parents, and, as a result, more vigorous children. The young women of to-day take more outdoor exercise, and consequently are not so neurotic as

their ancestors. A neurasthenic woman makes the poorest possible milk-producer. It is fortunate for the future of the human race that young women are transferring their allegiance from crochet and embroidery-needles to golf, and to other outdoor exercises equally as good. Imitation is one of the strongest characteristics of the human race, and the tendency to outdoor life pervades among the rich and poor.

Breast-milk during the first two or three weeks of the infant's life is produced under conditions that are unfavorable; in other words, under conditions that do not indicate the possibilities of the breast as a secreting organ. Following upon confinement, it is not indicative of what may be possible later, when the customary life and daily habits are resumed. Very often an abnormal condition of the ingredients in the first week or two of the mother's milk is corrected later without any changes being made. Many infants are taken off the breast at this time when a little careful management would tide them over and make nursing most successful.

Unsought advice as to the feeding and daily habits of a child's life are usually appreciated and welcomed by mothers. Errors in a child's life are almost always due to ignorance, and for this reason mothers, no matter what their station in life, are glad to do what is best for the interest of their child. Certain rules of life having a direct bearing on nursing lead one nearer the ideal and may enable one who otherwise could not nurse her child to do so. These requirements are all laid down along common-sense lines and cause no hardship or mental distress.

Breast-milk is probably one of the most precious substances, and its production is most uncertain and va-

riable. It is invaluable, unless one can put a value on human life.

From experience it has been found that the most successful nursing age is between the eighteenth and thirty-fifth years, although on both sides of these limits nursing may be successful. Many exceptions are found to the average nursing rules. For instance, nursing is occasionally successful in an abused society woman and some times it fails utterly in those whom we would expect to be most efficient. Often at the beginning women make poor nursing mothers, but with a little teaching and careful management they may be able to carry their infants through a successful nursing period of eight or ten months. One of the most important requirements of a nursing woman is that she be mentally sound.

### Conditions Prohibiting

Nursing should absolutely be forbidden:

1 When the mother is suffering from tuberculosis.

2 When she has serious disease of the heart or kidneys (to be guided by the doctor's decision).

3 During the fever stage of acute infectious disease the child must then be removed from the breast. During convalescence it is not often possible for the mother again to nurse the infant, both because of her depleted condition and because of the failure of the milk to appear.

4 When she is epileptic or choreic.

5 When she is losing in weight and strength and rapidly becoming anæmic.

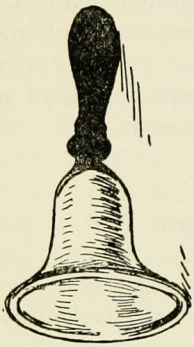
### Conditions When Nursing Is Impossible

In addition to the above-mentioned reasons, an infant may be unable to suck properly owing to lack of strength,

tongue-tie, or cleft palate. In the latter condition the milk comes back through the nostrils.

### Care of Breast and Nipples

A day before the infant is expected, the nipple should be carefully washed with soap and water and a soft brush used to keep the openings in the nipple clear. Before and after each nursing, the nipples and adjoining portion of the breast should be cleaned with a solution of boracic acid; and between the nursings the nipples and adjoining skin should be covered with a cloth, or, if practicable with a piece of sterile gauze. No corsets should be worn which in any way press upon the breasts. If the nipples are at all sore or tender, the washing should be followed with a sponging with alcohol, and then a little zinc oxide or albolene should be applied. A nipple shield may be used, but most infants refuse to nurse them. The breast must be squeezed so as to fill the nipple before putting the baby to it.



Nipple shield

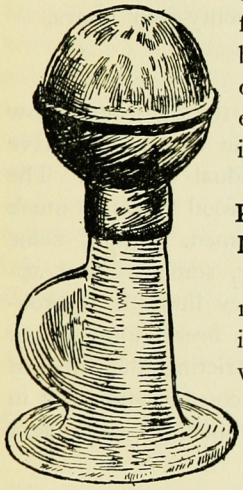
If the nipples are sore and bleeding it is sometimes necessary to keep the baby from nursing at all. After washing the hands the breasts should be massaged with sweet-oil. This should be done all the way round, commencing at the base and gradually approaching the nipple. After this a breast pump should be used to draw off the milk for the baby, and, as healing proceeds, the baby should nurse every other time, care being taken to see that the breasts are emptied with a pump.

It is advisable to support loose pendulous breasts with

bandages at first, and later with loose corsets, and if the milk is slow in coming the breasts should be massaged for ten minutes three times a day.

### Rotation of the Breasts

The child should be nursed alternately, first on one breast and then on the other. Occasionally it is advisable, when there is little milk, to nurse first on one and finish on the other, but as a matter of fact this frequently disturbs the child, and rarely has the effect, which might be expected, of increasing the milk.



Breast-pump

### Position of the Child While Nursing

When the mother is nursing in a recumbent position, both she and the infant should lie on the side, and reverse the side in changing breasts. She should see that the breast does not hinder the infant from breathing freely through both nostrils. When in the sitting posture this precaution should also be observed. A small foot-stool serves to elevate the knee, on which she can rest the infant and thus save the mother's back.

### Amount of Food Taken and Method of Estimating It

It often becomes necessary to know how much the baby is taking at a nursing. In order to do this it should be weighed accurately before and after nursing, the gain in

weight representing the child's intake of food. During the second day the infant will take one ounce or a fraction thereof at each feeding, and at the end of the first week two ounces. At the end of the first month, it will take from three to three and one half ounces, and from the second to third months about five ounces and occasionally six ounces. After this gain is small, varying from six to eight ounces at six months, the child rarely taking more than forty ounces in twenty-four hours.

### Length of Time at Breast

Very often one is confronted with the question, "How long should an infant remain at the breast?" I have found this to be an entirely individual question. The ease with which the baby obtains its food varies as much as do the breasts of different women. Again, some children are weak, some are strong, some without appetite, some greedy. As an arbitrary limit, it is probably not well to leave a baby at the breast longer than fifteen or twenty minutes. In restricting the time at the breast, we must always take into consideration that in the first five minutes the child gets as much as in the next ten minutes.

### Nursing Interval and Nursing in the First Week

The baby requires no other food on the first day, except a little warm water with milk sugar, one ounce to twenty ounces of water. Of this he may have from a half-ounce to one ounce between nursings. Six hours after birth the infant should be put to the breast, and then every four hours thereafter according to the following schedule: 6 A. M., 10 A. M., 2 P. M., 6 P. M., 10 P. M.,

2 A. M. After the infant is one month of age, one night nursing only is sufficient, and this should be given at midnight. These instructions, on account of their very simplicity, are probably a revelation to many nursing mothers, but it is only with a good deal of thought and careful observation that I advocate this régime. The method avoids many cases of overfeeding and many of the acute attacks of indigestion that are so common in early life, and which are the reason for the unnecessary weaning of so many, and it furthermore virtually eliminates the ancient idea of "three months" colic. By this long interval the breasts are accustomed to become full, and in this way it produces better action and a greater supply of milk. Furthermore, it gives the stomach a rest, and prevents over-distension. If a baby has been fed irregularly at short intervals, or even regularly at two hours, it will require considerable emphasis on the part of the physician to carry the régime to a successful issue, but I am sure that in the end the results will disappoint neither the mother nor the physician.

### Regularity in Nursing

Regular habits in nursing should begin from the first, and strict attention to this matter is most important. The baby must never be allowed to nurse longer than twenty minutes, and should be given one breast at one feeding and the other breast at the next, unless he is older and requires more, when he may be allowed to nurse ten minutes at each breast for every feeding. He should be wakened regularly at his nursing hours. This can easily be accomplished by never deviating from the regular feeding schedule, and it will be of great benefit to

both mother and child. Infants after the first month or so can in this way be trained to sleep uninterruptedly through the whole night.

### Care of the Nursing Mother

The nursing mother should lead a simple, natural life and should have regular out-of-door exercise, preferably walking or driving—at least a one-hour walk morning and afternoon—as soon as her condition will permit. She should keep her bowels regular by means of proper diet and exercise, and, if necessary, by a mild cathartic, as prescribed by her physician. Two or three bran biscuits a day included in her diet will help in keeping her bowels regular. If the constipation becomes chronic, however, she should consult a physician.

She needs plenty of sleep, and if she has had a bad night she should take a nap in the daytime.

Indigestion in the mother, which shows itself in constipation, eructation of gas, headaches, diarrhea and the like, is caused by such foods as heavy puddings or underdone pastry; doughnuts; fried food soaked in fat; made dishes, such as croquettes and fritters; pickles, mincemeat, baked beans, pork and cabbage, and other heavy or poorly cooked foods. People, however, differ greatly in their powers of digestion and what will suit one person may upset the next. Overeating may be a cause of indigestion.

### Diet for Nursing Mother

A mixed diet of such digestible and nutritious foods as are readily available is desirable for the nursing mother. All foods are milk making. The foods selected will differ widely according to circumstances, but will usually

include vegetables, ripe fruits, meat, poultry, and fish, with oysters and the like, eggs, milk, cheese, farinaceous foods of all kinds (cereals, flour, meals, etc.), breads, especially Graham, whole wheat, corn-meal, and bran and simple desserts. I do not believe that acid fruit, spices, pickles, etc., produce indigestion in the infant if eaten by the mother. The disturbance in the infant usually ascribed indiscretions on the part of the mother are undoubtedly caused through indigestion in the mother, thus indirectly affecting the mother's milk-supply.

Drugs should be taken as little as possible and only on the advice of the physician. Tea and coffee may be taken in moderation, not more than one cup of each a day. Alcoholic drinks of all sorts are better avoided. One quart of milk should be taken each day in addition to six or eight quarts of water, one or two of which should be taken on rising to encourage the action of the bowels.

A conscientious young mother is very likely to defeat her own ends by staying at home too constantly and watching over her baby so incessantly that she grows pale and nervous and begins to worry, a condition which often results in depletion of the milk and corresponding disturbance in the baby. Healthy babies are better off with a judicious amount of "letting alone," and there is no reason why a mother should not be absent some part of every day if there is a responsible person left in charge. Out-of-door life, pleasant recreation that is not exhausting, visiting, and other diversions are essential to every nursing mother if she is to keep up an abundant supply of milk. The family, especially the husband, should realize how important it is to shield the nursing mother from unnecessary work and worry and

to provide her at intervals with the opportunity for rest and recreation. However, a healthy mother should not regard herself nor permit her family to regard her as in any sense an invalid at this time; she is more likely to succeed in nursing if she goes about her ordinary duties as usual and fills her life with normal interests.

Worry, anxiety, fatigue, loss of sleep, household cares, social dissipation, etc., cause more failures in nursing than any gross errors in diet. They should therefore be stringently guarded against. Uncontrolled emotion, grief, excitement, fright, passion, may cause the milk to disagree with the child; at times they may even cause acute illness, and at other times sudden and complete disappearance of the milk.

A nursing mother often becomes anæmic, with the result that her milk is deficient in iron, thereby causing the child to become anæmic also. It is a good thing, therefore, when in this condition, for the mother to take some form of iron during the nursing period. Iron and ammonium citrate in two- or three-grain tablets, taken once or twice a day, is the best preparation, as it is not constipating like most of the other preparations of iron.

### Effect of Pregnancy on the Nursing

Among the laity there is a wide-spread idea that pregnancy in a nursing woman is an absolute indication for weaning the baby. Fully 75 per cent of lactating pregnant women can nurse their babies. One frequently sees women who pass the early months of pregnancy giving nourishment to their babies with both thriving; so that we can hardly regard pregnancy itself as a direct indication for weaning. Usually if any disturbance arises in the infant, it is only after the mother learns

of her condition; this frequently acts as a nervous shock. Among certain classes of women where the pregnant state is almost continuous after marriage, it is not unusual to see six, seven, or eight months pregnant women nursing perfectly healthy infants.

Menstruation in itself is not sufficient cause for removal of the child from the breast, although in nearly all cases the quantity of the milk is less and the infant as a consequence is not satisfied, with a resulting stationary weight or decrease. In a few cases there is a change in the quality of the milk, causing minor disturbances in the infant, such as restlessness, colic, or frequent stools.

As a rule both menstruation and lactation do not proceed together. If the child is gaining regularly in weight between the periods, nursing may be continued indefinitely, although it may be well to feed the infant wholly or in part during the first day or two that the mother is unwell.

**Mixed Feeding**

It is always advisable to begin giving a baby one bottle in the twenty-four hours after he is two weeks of age, beginning with Formula p. 125 at end of second week and gradually increasing the amount according to his age. There are numerous reasons for this regimen, chief of which are that the mother may be suddenly taken ill or unavoidably absent, or her milk may be temporarily unfit for the baby's use as a result of violent emotion, menstruation, etc. As a precaution against these possibilities it is well to begin early with the bottle; as the younger the infant, the more readily can he be taught to take the bottle. Furthermore, it makes weaning much more simple and efficient.

### The Normal Nursing Infant

The child should show a gain of not less than four ounces a week. This is the minimum gain that is safely allowed, although in summer-time healthy breast-fed infants may go several weeks without gaining, especially during a hot spell. Usually there is something wrong when a nursing infant gains only two or three ounces a week, and the cause of the slow gain is invariably found in the milk-supply. When a baby is nursed at regular and proper intervals, and the supply is ample and of good quality, he is satisfied at the completion of the nursing. If the child is under three months, he usually falls asleep after ten or twenty minutes' nursing. When his time for feeding is at hand he is restless, cries lustily, and generally makes it known that it is meal-time. When at the breast he takes greedily. The stools average two or three daily and are yellow and soft. Under such conditions the average weekly gain is from six to eight ounces.

### When the Milk Disagrees with the Infant

It occasionally happens that the mother's milk does not agree with the infant. By this statement I do not mean that the milk is "poisonous" to the child, or that weaning should be undertaken immediately, for in 75 per cent of instances such a step is not necessary. The symptoms, provided they are not due to hunger or disease other than that of the digestive tract, can invariably be corrected by careful attention to detail. Every effort should be made to ascertain what is the cause of the disturbance, especially when such symptoms as vomiting, colic, diarrhea, or constipation are present.

One or a combination of the following conditions may be the cause of the trouble:

1 The infant may take too much at a feeding.
2 The infant may take milk too rapidly.
3 One or more of the ingredients in the milk may be at fault.
4 There may be a poor milk-supply.
5 The milk generally may be of poor quality (weak milk).

**First and Second Conditions**

The first and second conditions may be ascertained by carefully weighing the baby before and after nursing. The child need not be undressed for this purpose, and the scales must be accurate. Suppose an infant one month old, which is not thriving and weighs only about six pounds or thereabouts, weighs four or five ounces more after nursing twenty minutes. We thus know definitely that the infant has taken too much, and as it is underweight it should not have taken more than two and one half to three ounces. In order to check up this observation it is necessary to weigh two or three times each day, so that an average may be arrived at, and the exact time for nursing thus be ascertained. At the next hour for nursing we allow the child to nurse for three minutes at one breast and then weigh; after that we give the child the other breast. If the amount is too large, we shorten the time of nursing at each breast and ascertain as before what the "nursing interval" should be. It should be remembered that some infants can take as much as an ounce a minute and thus not only overload their little stomachs but, in addition, nurse too quickly.

### Signs of Too Much Milk

Signs that too much milk is being taken may be enumerated as follows:

a Rapid increase in weight.

b Appearance of being overfed after nursing—a "full look."

c Spitting up or, perhaps, vomiting a little directly after feeding.

d Usually colic and gas.

e Free perspiration.

f Passage of large amounts of urine, as is evidenced by the diapers being constantly wet.

g Stools large and frequent, and green in color. One or more of the above mentioned symptoms may be present, depending upon the amount of overfeeding.

### Too Rich Milk

Mother's milk may be made too rich by:

a Too rich and highly seasoned foods.

b Not enough exercise.

c Emotional disturbances, such as grief, temper, mental excitement.

d Very occasionally by the onset of menstruation.

### Too Quick Nursing

If the trouble be due to too rapid nursing, as is manifested by the above signs, and by too much milk, the child can be put on the breast for two to three minutes at a time with intervals of one to two minutes, or the mother can compress the base of the nipple with her first and second fingers while the child is nursing. If this does not succeed and is not productive of amelioration of the symptoms, the baby should be given from a half to one

ounce of plain boiled water or barley-water before each nursing. This will serve to take the nip off the baby's appetite and will usually bring about the desired effect. A great many infants during too rapid nursing suck in air, which, in addition to the gas already present, will still further add to the discomfort of the baby.

Having previously ascertained that the child is not taking too much nor feeding too rapidly, one can be reasonably sure that the milk is too rich in one or other of its ingredients. Formerly physicians used to feel that analysis of the mother's milk was all that was required to tell whether or not the milk would agree with the baby. Experience, however, has taught us that this analysis helps us very little, if at all; and the best proof that we have at hand as to whether or not the milk is agreeing with the baby is the condition of the baby itself. While one or other of the ingredients may be at fault, or one ingredient may be in excess of the other, the treatment is approximately the same for all conditions in which the milk is too rich.

**Treatment**

The infant should be given from one half to one ounce of either plain boiled water or plain boiled saccharin-water (one grain to a quart of water). This can be given from the regular feeding-bottle and gradually discontinues as the child improves. It should be borne in mind that the first few ounces taken from the mother's breast are not as rich as the last ones, and the baby should not nurse as long as he has been doing on that account. This half an ounce to an ounce of water that he receives before nursing serves to dilute the mother's

milk and brings the amount approximately up to the requisite amount.

Rich milk is very often the result of the mother's method of living and of her general neglect of the rules of diet and exercise, etc., which have been already enumerated. Improvement in the milk will often follow strict attention to these matters, especially when the amount of meat has been eliminated and alcohol in every shape or form stopped. In addition to this, the mother should be encouraged to take plenty of daily exercise in the fresh air. It occasionally happens that the mother's first menstruation period and perhaps subsequent ones will be responsible for a slight indigestion in the infant, such as vomiting and looseness of the bowels. When this occurs, it is wise to nurse the infant only half the usual length of time and to make up the amount of food by giving more plain boiled water. In my experience I have never found it necessary to discontinue nursing or to add bottle feeding. If the child's symptoms do not improve after diluting the breast milk as mentioned above by giving water before nursing, lengthen the interval to every four hours, if this has not already been done, and shorten the length of time that the baby remains at the breast. In other words, considerably reduce the amount of food the baby obtains at a nursing. It not infrequently happens that even these measures are not sufficient to give the baby comfort and freedom from symptoms. It is then necessary to give in place of the boiled water one half an ounce to one ounce of protein milk or protein milk powder (directions should be obtained from the physician). The institution of these measures is practically always successful, and immediate improvement is forthcoming. There are, however, instances

when it is wise on account of the severity of the indigestion to stop nursing for twenty-four hours and give the baby nothing but boiled water. In the meantime the mother's breasts must be pumped so that they will not become painful or caked. As the child's symptoms improve, his length of time of remaining at the breast may be gradually increased and the protein milk discontinued. This protein milk is not injurious and can be continued indefinitely; it may even (as in many instances in my own practice) be continued through the whole nursing period.

### Signs of Insufficient Mother's Milk

The following signs indicate that the mother's milk is insufficient:

1 The infant does not appear satisfied after nursing, does not suffer from colic, and rarely vomits. It occasionally happens, however, that when the infant is not getting enough food he vomits after feeding; the reason for this is that after the feeding is finished the child begins to cry on account of hunger, and the exertion of crying frequently produces vomiting.

2 The infant is fretful and impatient while nursing, frequently "mouthing around" as though looking for something else. It is stationary in weight or makes very little gain.

3 It does not sleep enough and is restless, although it occasionally happens that these are very good infants in spite of the fact that they are not getting sufficient food.

4 The supply of urine is scanty, and the diaper may be stained yellow or a brick-red color.

5 The child is usually constipated, requiring a laxative every day, and the movements frequently small.

It is very easy to determine when the milk is scanty by simply weighing the child before and after nursing. In this way one can ascertain whether or not the child is getting sufficient food at each nursing. The mother should not rely on one nursing alone, but rather on the average of three or four daily weighings before a conclusion is drawn that there is not enough there for the baby. When it has been determined that there is not enough there for the infant, the mother should be given and encouraged to eat an abundant diet with plenty of meat, vegetables, cooked cereals, and milk, and, in addition to this, corn-meal gruel twice daily. If she is anæmic, she should certainly have some preparation of iron. A mother who has not enough milk should be careful not to overfeed, because this overfeeding will probably produce an acute digestive disturbance, the result of which may be the entire disappearance of her milk. A mother with her first child often does not secrete enough milk in the first few days, and she should therefore be encouraged to hope with confidence that she will have plenty in a few days' time. If enough milk is not taken from nursing on one breast, both breasts should be utilized at each nursing. A procedure that might be adopted is to nurse for eight minutes on both breasts; this double stimulation frequently tends to increase the supply. Occasionally at this juncture a malt tonic of some kind might be given the mother. In addition to this the breasts should be regularly massaged two or three times a day in order to stimulate further the secretion, and every means should be adopted to improve the mother's supply.

In order that the infant may not lose in weight in the meantime or be uncomfortable, he should be weighed

before and after each nursing in order to ascertain how much food he is getting at a nursing, and a bottle containing as many ounces of a modified milk mixture as are necessary to make up the amount lacking must be given to the baby.

For instance, a normal baby two months of age weighing eleven pounds is found to be getting only two ounces at a nursing when he should be getting from four to five ounces. It is further ascertained that he obtained this two ounces at the end of nursing for five minutes on both breasts. As it is useless to nurse longer, the mother should nurse him for only five minutes on both breasts, and she should then give a bottle of a modified milk mixture to make up the total amount of food he should get; that is, five ounces. It should be remembered at this point that bottle feeding should be more diluted for the average infant of this age and weight, especially if he has not been previously receiving cow's milk. At this age Formula No. 1. p. 122 should be employed for this case.

**Poor in Quality but Abundant in Quantity**

Milk poor in quality but abundant in quantity is shown by lack of gain in weight, although weighing before and after feeding shows that he is getting sufficient in quantity. This infant is usually restless and constipated, occasionally vomits, and occasionally has a little colic. This is a condition that is the least favorable for the continuance of nursing. In these instances the mother's diet should be made more nourishing, as previously mentioned, with plenty of meat and vegetables, cereals, milk, etc. It usually happens that if the condition does not improve rapidly the child has to be

weaned. Nursing mothers are not hastily to conclude that their milk does not agree, for faulty conditions are very often remedied, and the nursing may be continued quite satisfactorily and to the great benefit of the child.

On the other hand, if the infant continues with the bad symptoms in spite of all care and careful watching, he should be given artificial food alone for a few days upon a physician's advice, and if this agrees with him he should be weaned at once.

In these instances, which fortunately are not frequent, it would be a great mistake to carry on a mixed feeding, that is, the breast and artificial food, for it has already been found that the breast-milk does not agree, and to continue nursing will only lead to further disturbances.

**Mixed Feeding**

Mothers are frequently advised to alternate nursing with a bottle feeding. In my experience this procedure is not so efficient as what is spoken of as a supplementary feeding; that is, to nurse the baby until he has had sufficient and then give him a bottle. In cases where the quality of the milk is poor, nothing is gained by alternating the nursings with a bottle; rather, the infant should be weaned entirely. It is not infrequently advisable to begin a new-born baby at the age of two or three weeks on one bottle a day for the purpose of relieving the mother, especially if she has suffered during confinement. This should be done with the idea of accustoming the child to the bottle, because infants if untrained to take the bottle in early life become very refractory at the weaning time, and as a result great difficulty is experienced. Furthermore, the mother may be suddenly taken ill, and

it may be necessary to wean the infant instantly. If the child has been unaccustomed to the bottle, there is likely to be no end of trouble, sometimes with disastrous results if the condition is not properly handled. But here, of course, a physician's advice should be sought early.

When one bottle is begun with an infant two weeks of age, formula on page 125 at end of second week on feeding of the New Born should be used. It is not necessary to make such a large amount as twenty ounces; ten ounces is sufficient, and so the ingredients may all be divided in half. It is not desirable to make up less than ten ounces, as then it is difficult to calculate the amount of the ingredients. Of this mixture two to three ounces may be given, preferably at the last feeding at night. If it becomes necessary to give more than one bottle owing to the mother's being suddenly separated from the infant on account of illness, etc., the same formula can be used. However, in any case, if the child's progress is satisfactory, after a few days the formula should be changed and very gradually increased, first in quantity, and then in quality, until at six months the child is getting six to seven ounces of Formula No. 6, page 123.

Between eight and ten months weaning should take place. An infant should not be nursed beyond ten months, unless the mother is specially ordered to do so by the physician, as certain changes take place in the mother's milk that make it unable to meet the demands of the infant and which will result in the appearance of certain deficiences such as anæmia and loss in weight in the child.

### Colic and Wind

In a nursing baby colic is due to too frequent nursing,

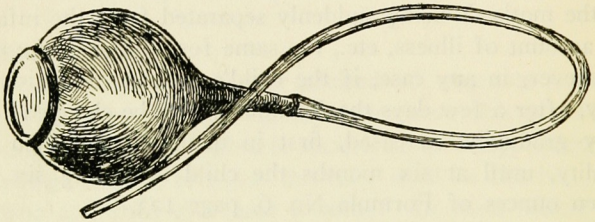
overfeeding, or too rich milk. In bottle-fed infants the chief causes are overfeeding or the giving of indigestible food, especially sugar and starchy foods; constipation, cold feet, and giving cold food also cause colic.

### Symptoms

The symptoms of colic are that the child cries, draws up its legs, and gives evidence of distress. The stomach is hard and distended; the hands and feet may be cold, and the face pale. Rumbling sounds can sometimes be heard in the bowels.

### Treatment

In mild cases the stomach should be gently rubbed for a few minutes, or the child made to lie on its stomach on



Three ounce soft rubber bulb syringe with No. 18 French catheter attached for rectal injection

the mother's lap, and the back patted with the palm of the hand. A hot-water bottle applied to the stomach is very soothing, and the administration of a half teaspoonful of peppermint-water mixed with a little hot water or a soda-mint tablet dissolved in warm water will often be followed by an eructation of gas that will give great relief.

If the bowels are loose a teaspoonful of castor-oil

followed by the application of a hot flannel to the abdomen will soon relieve the symptoms.

In severe cases an injection by means of a catheter and soft rubber ball syringe containing two teaspoonful of glycerin to three ounces of warm water will often effect relief.

In bottle-fed infants the usual cause is too much sugar or too much milk; this condition, of course, should be treated by a physician.

## CHAPTER XII

### WET-NURSING

**Difficulties in Wet-Nursing**

There are so many difficulties in the way of obtaining a wet-nurse, and her advent into a household is so often followed by disturbances, that wet-nursing should be used only as a last resort when a child is extremely ill and all other means have failed. In my experience it has been very seldom necessary to employ a wet-nurse except in extreme instances.

**Indications for a Wet-Nurse**

One should never tarry too long before procuring a wet-nurse, if the case is urgent. It is always advisable to secure a wet-nurse in the case of a premature infant under three pounds if the mother is unable to nurse the child. In occasional instances where an infant has suffered for a long period from chronic indigestion and loss in weight, a wet-nurse is the only means of salvation, and her advent is frequently followed by rapid gain in weight when every other method has been followed by a steady loss.

**Selection of a Wet-Nurse**

In selecting a wet-nurse one must be absolutely certain that she is free from physical disease. Both mother and child should receive a thorough examination by a physician in order to exclude all disease, especially

syphilis and tuberculosis. No wet-nurse should be accepted without examination of her blood, whether or not considered essential. The size of her breasts is by no means a sure indication as to the abundance of her supply. Large breasts do not always indicate a large supply, and it very frequently happens that smaller breasts will yield an ample supply of milk. The best means of ascertaining this is by weighing the wet-nurse's own baby before and after nursing. If possible a woman should be selected between the ages of twenty and thirty years, and one with her first baby if possible, but this is not absolutely necessary. It is not essential that her own baby be of the same age as the foster-child as the changes after the first month are practically nil. It is the condition of her own baby that is the woman's best qualification for the position, and it is never safe to employ one whose baby has died unless she can be specially recommended by a physician who has had the baby under his care.

However, it is always more or less of an experiment; what suits one baby will not suit another.

**Cases Where Pumping the Milk Is Necessary**

For premature or very delicate infants, if they cannot take the breast properly, the breast-milk should be pumped and the milk diluted and administered by bottle. First give two to four teaspoons of water before each feeding, or the breast-milk may still further be diluted with an equal amount of water. While the milk is being pumped the wet nurse should be allowed her own baby, or the breast-milk is liable to dry up on account of lack of sufficient stimulation. It occasionally happens where the infant has been unaccustomed to nursing that it re-

fuses, and in this instance pumping of the breasts has to be resorted to, and the milk has to be given from the bottle. Where a wet-nurse is not obtainable, some reputable nursing woman in the neighbourhood may be induced to pump her breasts two or three times a day and to give the milk. Even this small amount of breast-milk two or three times a day will frequently bring about a favourable change in the child's condition.

The type of breast-pump that is most efficient is one known as the English breast-pump. There are many breast-pumps on the market, all of which are highly recommended, and all of which, with the exception of the English breast-pump, are more or less complicated and require considerable skill in their employment.

**Teatment of the Wet-Nurse**

The failure of a wet-nurse introduced into a family is often due to her being improperly or excessively fed or given various rich and highly seasoned dishes to which she is not accustomed, with a resulting acute digestive upset. The foster-mother should be given plain, wholesome food and, in addition to nursing her foster-infant, should be allowed to help care for it and take it for its daily airing. It should furthermore be seen to that she receives the proper amount of exercise and fresh air to keep her in good health, and the state of her bowels should receive careful consideration.

**Treatment of Wet-Nurse's Own Infant**

No woman should be allowed to employ a wet-nurse unless she agrees to take care of the wet-nurse's own child, for frequently it happens where such has not been the case that the wet-nurse's own infant has died and the

foster-child has survived, where if the wet-nurse had been permitted to keep her own child both infants would undoubtedly have survived. The fact that the mother has her own infant with her frees her from worry concerning it. While it may be necessary to feed the wet-nurse's own child by bottle, it is a good policy to allow it three or four feedings a day for the desired mental effect, and the suckling of her own strong baby will help to increase the flow of milk. The nursing of her own baby must be done at the regular nursing hour instead of the foster-child's nursing, or, if the flow of milk is abundant, immediately after the foster-child's feeding. The three- or four-hour interval between the nursings should not be interrupted by the nurse's suckling her own baby, as it will change the character of her milk. The wet-nurse whose milk is abundant will be able to nourish her own as well as her employer's baby. It has been conclusively shown that a good wet-nurse may nurse two or three babies. In fact, in my hospital experience I had one wet-nurse who was able partially to nurse nine infants in twenty-four hours and to give on an average of four quarts of milk a day. In other words, added infants increased her supply of breast-milk correspondingly.

As soon as the sick baby has commenced to gain in weight on the wet-nurse's milk, it is advisable to begin giving one to two bottles of milk mixture, so that he may gradually be accustomed to it and the wet-nurse dispensed with as soon as possible. In addition to this, it is a wise precaution against illness or sudden departure of the wet-nurse.

# CHAPTER XIII

## WEANING

### Reasons of Early Weaning

Under normal conditions it is never necessary for a mother to wean her child before it is nine or ten months of age. Unfortunately, however, there are not very many women who at the present age are able to nurse their infants so long. I consider a woman doing very well if she can nurse her baby entirely for seven months. Of course, if she can nurse it longer, so much the better. There are various reasons for weaning a child earlier than the normal weaning period, chief among which may be mentioned:

1 Acute illness of the mother; such as typhoid fever or pneumonia.

2 Chronic illness or weakness.

3 General run-down condition of the mother.

4 Definite proof that the mother's milk disagrees with the baby in spite of all methods adopted, as evidenced by the fact that the child suffers from colic and undigested stools and is generally restless and sleepless.

I do not consider that weaning is necessary or even advisable in the early months of pregnancy. In fact, I am quite convinced that the majority of women can nurse their infants perfectly well for five or six months without harm to the nursing infants or themselves. It occasionally happens that the child will not thrive on the

mother's milk for no apparent cause whatever, even though the quality and quantity measure up to normal. In these instances, one should be guided entirely by the child's symptoms, and weaning should be resorted to without further delay.

### Mixed Feeding

Although a great many physicians advise alternate breast and bottle feeding when the mother has not sufficient nurse for the infant, I do not feel that this is the proper procedure, for while it may give the mother more rest, which, of course, occasionally is necessary, it tends to reduce the mother's supply of food for her infant, instead of increasing the supply as one might anticipate. I therefore adopt the plan of having the mother nurse her infant for a certain period of time on both breasts until it has been determined that both breasts have been emptied. This may only take from three to five minutes on each breast. The infant is then given a bottle feeding of an appropriate milk mixture. In following this plan I have found that the supply of breast-milk keeps up longer, and as a result the infant makes more substantial gains.

### Weaning in the Summer-Time

As a rule it is not wise to wean during the hot months unless there are special and definite indications. If the baby is on the breast and is stationary in weight or gaining only two or three ounces a week, this, to my mind, is not sufficient evidence to warrant weaning in the summer months. As soon as a foreign food is introduced into the baby's stomach, there is always the danger of an upset owing to the uncertainty of the milk-supply in the

warm weather. These upsets may be carefully guarded against by using an appropriate milk mixture and by taking care that the food is properly prepared. It has been my plan to avoid weaning during the summer except when it is essential, and in the majority of infants no trouble has arisen.

### Results of Prolonged Nursing

A great many mothers have the idea that as long as they are nursing their infants they are giving them the proper food. This is quite true within certain limitations. Nature, however, did not intend infants to nurse at the breast when the teeth were well through, and, furthermore, changes take place in the mother's milk, so that it becomes deficient in certain constituents, especially iron; and as a result of this it produces loss in weight, with sometimes a severe grade of anæmia and malnutrition. According to my experience, nothing is to be gained by keeping the infant at the breast when it is steadily losing in weight and becoming pale, in spite of the fact that it may be in the summer-time, and that the child may be suffering from acute illness. The danger of nursing is much greater than the chance of weaning and of the employment of artificial food.

### Technique of Weaning

I am not in favor of the old method of weaning, that is, the substituting of one bottle at a time in place of nursing, as a great many infants will refuse the bottle for three or four times to their own detriment, and the result will be that the baby will lose rapidly in weight and that sudden weaning will become imperative. Whereas, if

the infant had been taught suddenly to take the bottle, the loss of weight and consequent danger to the child would be more rapidly removed. I am therefore in favor of sudden weaning, and I am quite convinced that my results justify this stand.

The technique is very simple and when properly conducted brings about sure results. The infant should be fed preferably by some other member of the family than the mother for the first few days until it has learned to take the bottle. If, however, it is not refractory and has been taught to take water out of a bottle or occasionally has been given a milk-and-water mixture in a bottle, no trouble will be evinced. If, however, the child has persistently refused the bottle, trouble will undoubtedly arise, and the mother should expect it. However, if the breast is excluded absolutely from the infant, after two or three times the infant through sheer hunger will be driven to take the artificial mixture. This procedure may sound heartless and cruel, but as a matter of fact it is merely overcoming the child's will in endeavoring to train it to take the new food. I have seen many an infant go for a week or ten days, and taking indeed very little of the milk-and-water mixture, but finally realizing that the best procedure for it to adopt was to take the artificial food. Fortunately these stubborn infants are few and far between. I might say that I have never seen an infant succumb to this procedure of weaning.

**Selection of Formula**

Signs of indigestion through the first few days of weaning are usually due to too strong a mixture of cow's

milk, and the child who has just been weaned should never be given a formula of the same strength as would be given a bottle-fed child of the same age. For example, if the child is to be weaned at the proper time, namely, between eight or nine months, instead of giving Formula No. 8 or No. 9 for an artificially fed baby of this age, the proper one to begin with would be No. 4 p. 122, or No. 5, gradually increasing until he is taking the right formula for his age and weight, but, being older, he may take larger quantities of a weaker formula; that is, seven or eight ounces. Loss of weight during the first week or so of weaning the child is usually experienced until he becomes accustomed to the new food, after which he will generally gain steadily, and often more rapidly than before.

### Drinking from a Cup

Many infants will prefer to take the new food from a small cup or teaspoon; in fact, a great many babies will take it from a cup or spoon in preference to a bottle. In any case it is essential to discontinue the use of the bottle at about fourteen months of age except for the last night feeding; it will rouse the baby too much to feed him from a cup or spoon at that late hour.

### Care of Mother's Breasts

Care of the mother's breasts is best accomplished by applying a snug breast-binder, restricting the amount of fluids taken to drink such as tea, coffee, and water, and taking enough of some saline laxative such as Epsom salts, citrate of magnesia, or Rochelle salts to produce four or five watery movements a day. Almost the same result may be accomplished by taking from twenty to

thirty grains of potassium citrate dissolved in water three or four times a day, in this way producing a copious flow of urine. It is sometimes necessary if the breasts become painful to massage and empty them with a breast-pump and then to apply an ice-bag.

# CHAPTER XIV

## ARTIFICIAL FEEDING

The first thing to be remembered before putting a young baby on an artificial food is that there is no real substitute for mother's milk. Even when a food is compounded of the same ingredients, and in the same amounts as nearly as can be determined, still there is a wide difference in its effects and in the manner of its behaviour in the digestive tract.

In order to comprehend the principles that underlie the proper feeding of infants, it is well to understand what is involved in the process of digestion and what food elements are heeded for the growth, maintenance, and repair of the baby.

### Digestion

Digestion is the process or series of processes by which the food eaten is changed into the forms in which it can be absorbed by the tissues of the body. This is a most intricate operation, involving the use of many organs and functions, but one which takes place without difficulty in the healthy human body. But since all the complicated machinery necessary for digestion must be started at once, and since necessarily the organs of a new-born baby can be but feeble it stands to reason that the food presented to them must be especially adapted to them. The food must be liquid; also it must contain the five

essential elements which the human body requires for growth; namely, the fats and sugars and starches that furnish the necessary heat and energy; the proteins, or muscle-builders; the mineral salts needed for the growth of all the tissues; and, lastly, a great amount of water. All these are found in milk, and in no other food that the infant is capable of digesting. Therefore, cow's milk is the one proper food for the artificially fed infant.

### Fat Babies

A very rapid increase in weight is not to be desired. The ideal in baby-feeding is not to produce a fat baby but rather a proportionately nourished one. It is comparatively easy to grow fat, but it is a harder and slower process to grow muscle, bone, blood, and nerve-tissues. The majority of mothers feel that if they have a fat, red-cheeked baby it is evidence they are giving the best sort of care, but this is not always true. Some of the well advertised infant-foods produce just this kind of babies, but the later development shows that the food was deficient in some of the important elements needed for the symmetrical development of all parts of the baby; and weakness of some parts or some later deficiency of health may be the first indication that such babies were not properly fed. A perfect baby does not have the outlines of his muscles obliterated by wads and cushions of fat. He is alert, springy; his flesh feels hard to pressure, not soft and flabby. His color is pinkish, save when the cheeks have been reddened by the cold or heat. It is practically impossible to put on more than six or eight ounces of good flesh in one week, and very few can put on as much. Artificially fed babies should be watched with particular care as to their weight in summer. It is

better to have little or no gain during the excessive heat than to upset the digesion by overfeeding that is designed to keep the baby gaining.

### Milk

Wide experience has shown that fresh cow's milk is the best substitute for breast-milk. This milk should be the purest and cleanest possible; it should be the product of a tuberculian-tested herd, one that is healthy, well fed, properly housed and cared for, and milked by clean milkers into sterilized utensils. The milk should be bottled and cooled at the dairy and delivered to the consumer in sealed bottles. The milk commonly sold from open cans, known as loose milk, should never be given to a baby.

### Certified Milk

In certain places it is possible to obtain what is known as certified milk, which is fresh, clean, pure, normal milk of uniform composition and highest quality obtained from healthy cows and produced and handled under the supervision of a medical milk commission with special sanitary precautions. Although the amount of certified milk is as yet far too small, the demand for it is steadily increasing. As soon as mothers become convinced of the infinite advantage of having a supply of raw milk whose quality is guaranteed, they are quite ready to pay the additional cost, usually from twelve to sixteen cents a quart extra; but, compared with the cost of an illness due to the use of unclean milk, this is not to be considered. There can be no doubt that the use of certified milk has been a factor in the reduction of deaths from infantile diarrhea in recent years.

### Care of Milk in the Country

If one is in the country a special arrangement should be made with the farmer by which he agrees that the cow's belly, udders, and teats should be wiped off with a damp cloth before milking; that the milker's hands should be washed before milking; that the few jets of the foremilk should be thrown away; and that as soon as the milk is drawn it should be strained through absorbent cotton into a quart-bottle suitably corked and placed in a pail of cracked ice. For the extra trouble the farmer receives from twelve to twenty cents a quart. For those who have country homes the above directions can be carried out to the letter.

### Pasteurization and Sterilization of Milk

Since the sources of contamination of milk are many and the difficulty of determining the character of milk great, it is expedient that all milk (with perhaps the exception of certified milk, and even this is more digestible when boiled) should be properly pasteurized or boiled. We would not think of eating raw meat, and yet it is not nearly so fertile a source of contagion as milk. We now know that many of the epidemics of infectious disease such as scarlet fever, diphtheria, tonsilitis, and typhoid fever, are frequently directly traceable to the milk-supply. Since the inauguration of Pasteurized and certified milk in Toronto, in the course of six years there has not been admitted to the Hospital for Sick Children a single case of abdominal tuberculosis originating within the city limits.

Pasteurization of milk changes its character very little, and boiling for two or three minutes does not change it sufficiently to outweigh its advantages on the side of

safety. The occasional case of constipation that is sometimes produced by the boiling of milk may be readily corrected by other means.

### So-Called Rich Milk

For infants the milk richest in fat content should not be sought for, but rather milk only moderately rich. Milk from a herd is much preferred to that from one cow.

### Brand of Cows

Holsteins as a herd produce milk particularly adapted to infants. The fat percentage is low and the fat globules small. If Jersey milk only can be obtained, it will be necessary to remove four to six cream-dippers from off the top of the quart-bottle. In order to do this, immediately after milking the milk should be put in a quart-bottle and allowed to stand for four hours, and then the cream can be removed.

### Care of Milk in the Home

After the best milk possible has been secured, it is necessary that it be kept pure and cold. All milk for infants should be poured at once after milking into clean bottles that have been sterilized by live steam or by being boiled, and should be placed upon ice until delivered.

### Temperature for Pasteurization or Boiling

As soon as the milk is received at the home it should be prepared according to the formula prescribed. It should then be poured into nursing-bottles, one for each feeding during the twenty-four hours, and each stopped

with a plug of sterilized cotton-wool. These bottles should first be thoroughly cleaned and boiled. The whole feeding may then be Pasteurized by placing the bottles in a water bath until the temperature reaches 145 degrees Fahrenheit and then allowing them to stand at this temperature for thirty minutes, or the milk may first be brought to the boiling-point for two minutes and then poured into bottles. The bottles should be placed in warm water until the milk reaches the proper temperature, namely, blood-heat then placed in cold water till cool and then put on ice, etc.

Milk left in a bottle after feeding should never be used for a second feeding but should be discarded and the bottle should be filled with water until it is cleaned and boiled.

### Boiling of Milk

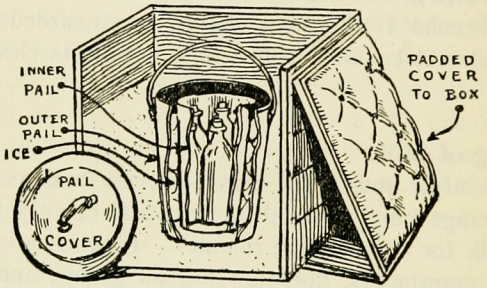
The safest and, I am convinced, the best method for the average family in both the city and country is to boil the milk for two or three minutes. Pasteurization, under any circumstances, does not kill all germs, and if it is improperly done it is worse than no Pasteurization at all. Heating milk to an insufficient temperature merely stimulates the growth of organisms.

Where ice cannot be procured, milk that has been boiled and rapidly cooled, if kept in a cool place, and sealed from the dust and flies, will be comparatively safe for twenty-four hours.

### Home-Made Ice-Box

A simple ice-box can be constructed at a cost of less than one dollar which will keep a baby's milk cold at an expense of only two or three cents a day.

An ice-box as illustrated may be made as follows: Procure a wooden box about eighteen inches square and the same depth; put a layer of sawdust three inches thick in the bottom of the box; fill in with sawdust around a ten-quart pail, which occupies the middle of the box. Inside this pail place another slightly smaller pail, which is to hold the ice and the bottles. This inner pail should be covered, and the outer box should be tightly closed by a wooden cover lined with several thicknesses of newspaper. The inner pail should be taken out each morning to be emptied and cleaned. When feed-




Courtesy, Dept. Public Health, Toronto
Home made ice-box

ing-time comes, the box is opened, one bottle is taken out, and the box is quickly closed again.

It should be borne in mind that neither Pasteurization or boiling transforms filthy milk into clean milk. It will, however, remove the chances of such epidemics as some of our cities have suffered from during the last years.

### Thermos Bottles

Thermos bottles may be employed to keep milk cool,

but never to keep milk warm, since germs develop rapidly in warm milk. The milk may be heated rather rapidly by putting the bottle under the hot-water faucet. Great care must be taken in the use of alcohol-lamps, as frequent accidents happen in this way, especially at night.

The simple graduated bottles, as illustrated, are inexpensive and more easily kept clean than most varieties.

**Nipples and Bottles**

The nipple should be of the simple variety that can be purchased at any drug-store and selected with small openings, as there is a tendency for infants to get their food too fast. If the opening is small, it can be readily made larger by heating a small sewing-needle to a red heat and burning the opening the size desired. Blind nipples may also be purchased and the openings made the size desired. Nipples should immediately after feeding be thoroughly cleaned with borax and water, then boiled for three minutes, and placed in half a glass of water with a heaping teaspoonful of borax in it. Rinse the nipple before using it.

The habit that many mothers have of putting the nipples into their own mouths before giving them to their babies should be absolutely prohibited, as it is a frequent source of infection.

**Utensils Necessary for Home Modification of Milk**

The following utensils (as shown in illustration) are usually essential for the modification of milk in the house:

1 Six to eight bottles.
2 Bottle-brush.
3 Nipples.

4 Glass graduate (measuring sixteen or twenty ounces).
5 Granite pitcher.
6 Glass funnel (not shown in illustration).
7 Tablespoon (regulation size).
8 Enamel saucepan for boiling purposes.
9 Wire bottle rack (not absolutely essential).

It is far better for the baby and easier for the mother if she takes a certain time each morning to make up the food for the following twenty-four hours. She then does not have to think of it again until the next morning. All the utensils for mixing the food should be kept in a place by themselves and should not be used for any other purpose. The person whose duty it is to make the food

Utensils necessary for the home modification of milk

should be responsible for their condition and should keep them clean, not trusting to any one else.

### Bottles

First, the bottles, one for each feeding throughout the day, are attended to. They are all clean and standing full of borax water from the day before. The bottle-rack is held over the sink, and the bottles, one at a time, are placed in it upside down to empty the borax-water. They are then turned right side up in the rack and filled

with hot water to rinse out the borax and again placed upside down to drain and cool while the food is being mixed.

### Mixing the Food for the Day

The fresh unopened bottle of milk is then poured into the pitcher so that the cream will be mixed in thoroughly (unless the directions call for part removal of the cream, this should be done first before mixing) and then poured back again into the bottle from which it came. Measure the proper amount of milk in the graduate and pour it into the pitcher. Measure out the proper amount of ice-cold water or gruel as the case may be and pour it into the pitcher. Measure out the sugar with a tablespoon (levelled with a knife) and add to the food. Heaping tablespoons mean all that you can get on the spoon, while a rounded tablespoon is the heaping portion partially removed; neither of these procedures, however, is as accurate as the first mentioned, viz., levelling. Stir until the sugar is dissolved.

### Boiling and Cooking

If the directions call for the food to be boiled, proceed as follows: Place the food, as mixed after first measuring the total quantities in a saucepan and gradually bring it to a boil, stirring constantly. Boil actively for three minutes; then proceed in the usual manner. If the food is to be cooked it should be placed in a double boiler and cooked for twenty or thirty minutes after the food begins to thicken.

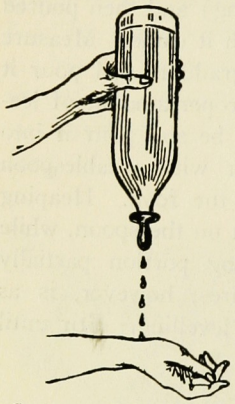
### Bottling the Food

Using the funnel, pour into each bottle the amount the

baby is to have at each feeding. Stop up the bottles with clean absorbent cotton and put the full rack in the ice-chest, directly on the ice if possible; wash up the utensils and put them away for the following day.

**Temperature of Food**

When feeding-time comes, all that has to be done is to place one of these bottles in a pan of hot water; the food should be just at body-temperature when it is fed. It is just as bad to have it too hot as to have it too cold. The temperature should be tested by pouring a few drops upon the forearm, and never by putting the nipple in one's own mouth or by touching the finger to the food itself. In winter it is well to have a woolen bag or knitted cover that just fits the bottles to hold the heat in during the twenty minutes while the baby is feeding.



Courtesy, Dept. Public Health, Toronto
Testing the temperature of food

*Principles of Infant Feeding*

COMPARISON OF COW'S MILK AND MOTHER'S MILK

| *Mother's Milk* | | *Cow's Milk* | |
|---|---|---|---|
| Fat | 4 per cent | Fat | 3 to 4 per cent |
| Sugar | 7 " " | Sugar | 4½ " " |
| Proteid | 1 " " | Proteid | 3.5 " " |
| Mineral Salts | ⅛ " " | Mineral Salts | ¾ of 1 " " |
| Water | 88 " " | Water | 88 " " |

## TABLE OF MEASURES AND CALORIC VALUES

1 level tablespoon equals 3 level teaspoons.
1 ounce of whole milk equals 20 calories.
1 " " breast " " 20 "

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ounce | by | weight | of | lactose (milk sugar) | equals | 3 | level | tablespoons | equals | 120 calories |
| 1 | " | " | " | " | dextri maltose (Mead's) | " | 4 | " | " | " | 120 " |
| 1 | " | " | " | " | cane-sugar | " | 2 | " | " | " | 120 " |
| 1 | " | " | " | " | barley-flour | " | 4 | " | " | " | 100 " |
| 1 | " | " | " | " | wheat-flour | " | 4 | " | " | " | 100 " |
| 1 | " | " | " | " | groats | " | 4 | " | " | " | 100 " |
| 1 | " | " | " | " | casec flour | " | 3 | " | " | " | 100 " |
| 1 | " | " | " | " | dry malt soup extract | " | 5 | " | " | " | 80 " |
| 1 | " | " | " | " | protein milk powder | " | 5 | " | " | " | 123 " |
| 1 | " | " | " | " | dry milk (Dryco brand) | " | 8 | " | " | " | 127 " |
| 1 | " | " | " | " | Klim (C. M. P.) | " | 4 | " | " | " | 100 " |
| 1 | " | " | " | " | apple-sauce | " | 2 | " | " | " | 30 " |
| 1 | " | " | " | " | butter | " | 2 | " | " | " | 240 " |
| 1 | " | " | " | " | carrots (cooked) | " | 1 | " | " | " | 13 " |
| 1 | " | " | " | " | cereals (cooked) | " | 1⅔ | " | " | " | 15 " |
| 1 | " | " | " | " | custard | " | 1¾ | " | " | " | 60 " |
| 1 | " | " | " | " | meats (scraped) | " | 1½ | " | " | " | 50–70 " |
| 1 | " | " | " | " | potato baked | " | 2¼ | " | " | " | 105 " |
| 1 | " | " | " | " | rice (boiled) | " | 2 | " | " | " | 31 " |
| 1 | " | " | " | " | spinach (cooked) | " | 1½ | " | " | " | 8 " |
| 1 | " | " | " | " | bacon equals 3 thin slices | | | | | " | 90 " |
| 1 | " | " | " | " | crackers " 3 thin slices | | | | | " | 114 " |

### Comparison of Cow's Milk and Mother's Milk

It will be noticed by a comparison of the two kinds of milk that the chief apparent difference is the amounts of sugar, proteid, and salts.

Mother's milk contains about 3 per cent more sugar than cow's milk, and cow's milk contains over twice as much proteid as mother's milk. Cow's milk also contains three times as much mineral salts as mother's milk. A study of these percentages has suggested to many in the past the possibility of substituting for mother's milk a chemically identical modification of cow's milk. This theory, however, was found to be false, as no amount of modification of the milk of one species can transform it into that of another.

### Percentage Feeding

It was, however, found necessary to modify cow's milk for young infants, and the method generally known as percentage feeding was adopted.

### Caloric Values

The different elements of the food—fat, sugar, and proteid—have definite food-values. The food-value is measured in units called calories, a calory being the amount of heat required to raise one litre (approximately a quart) of water one degree Centigrade. The food or caloric value of proteid and sugar are the same, while that of fat is more than twice as much as either of the other elements.

### Whole Milk and Cream

By whole milk is meant the milk as it comes from the cow, without any modification. By cream is meant the

part of the milk that rises to the top of the bottle after standing. It is usually known as gravity-cream and has a fat content of above 16 per cent, in contrast to separated cream, which has a fat content of about 32 per cent.

**Modification of Milk**

Cow's milk is usually modified by diluting it with some fluid, such as water or gruel, and then adding sufficient of whatever elements are necessary to bring them up to the proper percentages.

Since the caloric value of cow's milk is practically the same, ounce for ounce, as mother's milk, it is apparent that if we dilute cow's milk we must either give a greater quantity or add something to bring up its food-value.

The usual procedure, therefore, is to dilute cow's milk and then add a certain percentage of sugar. Since individual infants differ so widely in their tolerance of fat and sugar, it is always advisable to begin with low percentages of these elements and gradually increase them to the proper amount.

The days of complicated formulæ for babies' foods are over. Well babies do not need top-milks and creams, whey, lime-water, and the various foods that are frequently recommended. Such foods or special mixtures should be reserved for sick infants, who should be under a physician's care. Plain dilution of cow's milk (with all the cream stirred in), to which is added water and sugar, answers all the requirements of a good food until the baby is seven or eight months of age, when some cereal or gruel may be then employed either in place of the water or in addition to it. Plain milk mixed with water is easier to digest than cream or top-milks and

nourishes the baby better. Neither is there the same tendency to constipation when plain dilutions of whole milk are used.

### Fats

Excessive fat in the food, in addition to inducing constipation, frequently tends to make the baby spit up, which, combined with other symptoms, not infrequently produces a loss in weight.

### Sugar

The sugar is added solely for its nutritional value and for its laxative action on the bowels, and not at all for the taste. Sugar is very concentrated nourishment and is therefore one of the most important ingredients in the food. One ounce of sugar supplies as much nourishment as six ounces of milk. Sugar, unfortunately, is usually the most difficult part of the food to digest. If too much is given, it may cause either diarrhea or vomiting; while if too little is given, there will be little if any gain in weight.

### Kind of Sugar

Milk-sugar, which has been so extensively used in the past, should never be used where there is any digestive disturbance. It is not as easily digested as either cane-sugar (granulated sugar) or dextri-maltose. The latter is the best of all the sugars to use, especially if there is any tendency to looseness of the bowels.

As a routine in feeding normal babies I have been accustomed to use the ordinary granulated sugar, employing milk-sugar only in a baby who tends to vomit without looseness of the bowels.

### Proteid

This element of the food is the "curded portion" or casein and never gives us any trouble; on the contrary, this element is most beneficial in overcoming or correcting certain forms of diarrhea.

### How to Decide upon the Proper Amount of Milk

The most important points to consider, then, in deciding upon a well baby's food are three: the amount of milk, the amount of sugar, and the amount of water to be added to make up the proper bulk and concentration. The quantities of these ingredients depend upon the baby's weight and age.

### How to Gage Amount of Milk

The actual amount of cow's milk that a baby needs in twenty-four hours in order to maintain weight and proper growth is approximately one and one half to two ounces of milk to the pound of body weight, provided he can digest one and a half ounces of sugar.

### Amount of Sugar

This varies with almost every infant, but as a rule babies weighing under twelve pounds can digest one ounce in the twenty-four hours, and those over twelve pounds one and a half ounces. However, a great many under twelve pounds can digest one and a half ounces in the twenty-four hours. The converse may also be true.

### Amount of Water

Enough water is added to make the proper amount of food; namely, the total quantity in twenty-four hours that is determined by the quantity at each feeding and the number of feedings in 24 hours.

## INFANT FEEDING SCHEME

| Formula | Age | Weight in Pounds | Milk | Water | Sugar | Hours Total Quantity in 24 | Amount at Each Feeding | Intervals of Feeding | Number of Feedings | Hours Best Adapted |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Third and fourth weeks | 7 to 8 | 10 | 15 | 1 | 25 | 2½–3½ | 3 | 7 | 1–7–10 A. M.<br>1–4–7–10 P. M. |
| 2 | Second month | 10 | 14<br>16 | 16<br>14 | 1 | 30 | 3½–4½ | 3 | 7 | " |
| 3 | Third month | 12 | 18<br>20 | 17<br>15 | 1 | 35 | 4–5 | 3 | 7 | " |
| 4 | Fourth month | 14 | 21<br>22 | 14<br>13 | 1½ | 35 | 5–6 | 3 | 6 | 7–10 A. M.<br>1–4–7–10 P. M.<br>1 A. M. feeding omitted |
| 5 | Fifth month | 15 | 23<br>24 | 12<br>11 | 1½ | 35 | 5–6 | 3 | 6 | " |

## INFANT FEEDING SCHEME

| Formula | Age | Weight in Pounds | Milk | Water | Sugar | Total Quantity in 24 Hours | Amount at Each Feeding | Intervals of Feeding | Number of Feedings | Hours Best Adapted |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Sixth month | 15–16 | 24<br>25 | 16<br>15 | 1½ | 40 | 7–8 | 4 | 5 | 6–10 A. M.<br>2–6–10 P. M. |
| 7 | Seventh month | 16½ | 25<br>26 | 15<br>14 | 1½ | 40 | 7–8 | 4 | 5 | " |
| 8 | Eighth month | 17 | 26<br>27 | 14<br>13 | 1½ | 40 | 8 | 4 | 5 | " |
| 9 | Ninth month | 17½ | 28<br>29 | 12<br>11 | 1½ | 40 | 8 | 4 | 5 | " |
| 10 | Tenth month | 18 | 30 | 10 | 1½ | 40 | 8 | 4 | 5 | " |

N. B. As a rule most infants will tolerate each week a one-half-ounce increase in milk and a one-half-ounce decrease in water in the total day's supply of food. Occasionally, however, this will be found to be too rapid, and the increase will have to be made every two weeks. For example, an infant of five months will take 23 ounces of milk, 12 ounces of water, etc.; the following week, 23½ milk, 11½ water, etc.

### Quantity of Each Feeding

The rule for the quantity of food at each feeding is one to one and one half ounces more than the number of months of the baby's age; at three months give four to four and one half ounces, etc. It is never necessary to give more than eight ounces at a feeding.

### Number of Feedings

First three months seven feedings; then the 1 A. M. feeding is omitted and only six feedings given for the subsequent two months, and at six months the infant is given but five feedings in the twenty-four hours.

### Interval between Feedings

As a general rule bottle-fed infants will thrive better through being fed every three hours for the first five or six months and after this every four hours. Up to the third month it is usually wise to continue the 1 A. M. feeding, but after this it should be dropped.

### Feeding of the New-Born

During the first week a baby's digestion will not stand enough food to make him gain, and we should not expect it of the bottle-fed baby. Therefore the rules given in the table do not apply to him. Occasionally it is necessary to feed a baby on the bottle from the beginning, usually through illness of the mother. In commencing his food it should be made very weak at first and gradually worked up each day until at the end of the second week the food is usually strong enough to make him gain.

| | | |
|---|---|---|
| Second or third day: | 5 ounces whole milk.<br>15 ounces water.<br>No sugar. | Boiled as directed and water added to keep up to 20 ounces. |

1 to 2 ounces every 3 hours, 7 feedings.

| | | |
|---|---|---|
| Third and fourth days: | 6 ounces milk.<br>14 ounces water.<br>1 level teaspoon granulated sugar. | Boiled as directed and water added to keep up to 20 ounces. |

2 ounces every 3 hours, 7 feedings.

| | | |
|---|---|---|
| At the end of first week: | 7 ounces milk.<br>13 ounces water.<br>2 or 3 level teaspoons granulated sugar. | Boiled as directed and water added to keep up to 20 ounces. |

2 to 2½ ounces every 3 hours, 7 feedings.

N.B. If stools tend to be loose, the same quality of Mead's Dextri-Maltose No. 1 should be used in place of the granulated sugar.

From here increase one half ounce milk and decrease one half ounce water every day or so till at the end of the second week the feeding should be:

| | |
|---|---|
| 10 ounces milk.<br>15 ounces water<br>4 level teaspoons sugar. | Boiled and water added to 25 ounces. |

3 ounces every 3 hours, 7 feedings.

At this point commence with Formula No. 1, in table on page 122.

## CHAPTER XV

### INFANTS' STOOLS

**Normal Breast-fed Babies' Stools**

During the first week or so a normal breast-fed baby usually has four or five stools a day. For the first three or four days they are usually dark brown with a tinge of green and of a sticky consistency. They gradually become more light in color until at the end of the first week they are of a mustard shade with a slightly acid odor not at all unpleasant. Usually for the first week or ten days a breast-fed baby has from two to four stools a day.

**Normal Bottle-fed Babies' Stools**

A healthy bottle-fed baby has usually on an average of one stool in twenty-four hours; exceptionally two stools. These are pale yellow or dark yellow or brown and of a homogenous character. They should be perfectly smooth without any curds or undigested matter present.

**Drugs**

Certain drugs give a peculiar color to the baby's stool. Iron or bismuth change the stool to a very dark, almost black color. When calomel is given in an effective dose, the first portion of the movement is perfectly normal, but the remainder will be a dark green. This is usually due to the effect of the drug on the liver. The same

applies to castor-oil. With the use of both drugs there is always a certain amount of mucus present; and this does not indicate any disease, as mucus is a normal constituent of the bowel and when it is present the increased movement of the bowel has brought down the normal coating and has caused the normal cells to secrete more mucus.

**Curds or Lumps or Indigestion in the Stools**

When fat is not properly digested, it will appear in the stools in the form of a curd, or whitish, yellowish lump, of various sizes, which may be easily flattened out with a spatula. These fat curds are small, flat, yellowish or whitish lumps about the size of a pin-head or a little larger. In many instances, however, we have what is known as a protein curd present in the stool. These occur only when the milk has not been boiled; that is, when it has been fed to the infant raw. These curds or lumps, which resemble lima beams, are not evidences of indigestion. The curds may be easily pressed out, while the lumps are hard and tough.

**Fatty Stools**

If the baby is receiving too much fat in the food, he will give evidence in the stools. The movements usually are loose, containing many soft fat curds, and light green in color. Occasionally the movement may be large or pale grey and pasty or greasy with a somewhat rancid odor. In extreme cases, the movements will be almost white and very dry. This is very frequently the case when top-milk or cream is being fed to the baby.

### Stools That Show Excess of Sugar in the Food

Sugar is the one element in the infant's food that tends to make the movements loose, and it is one of the chief causes of summer diarrhea. In infants that are unable to handle the proper amount of sugar in the food, the stools are frequent, green, frothy, sour, and fermentative and are passed with considerable gas, and the buttocks are usually sore and red.

### Stools of Overfeeding

Infants who are overfed may have from four to five normal stools daily, frequently immediately after feeding, and often as many as four to seven a day. They are fairly well digested except that they are loose. On the other hand, in older children, they may only have one stool, but it is large, light in color, pasty, and of a foul odor.

### So-Called Inactive Liver

These stools are pasty, almost white in color or pale yellow. These stools usually occur in older children around the runabout age and are due to the fact that the child is not properly digesting the fat in his food. Improvement may be obtained by an immediate dose of calomel and the use of skim-milk and the exclusion of all butter from the diet.

### Stools Showing Inflammation of the Bowels

These stools occur most frequently in infants who have received improper food or food that has been infected, especially where the handling of the milk has been unclean. The movements are known by mucus, green in

color and may be streaked with blood. This is always indicative of a serious condition and should be handled only by a physician.

### Brick-Red Discoloration

When there is a brick-red discoloration on the diaper, this means that more fluid, especially water, should be given, and it will disappear in a few hours if more is given.

### Blood on Outside of Stool

Frequently parents become very much worried if blood appears on the outside coating of the stool. This is not indicative of serious trouble and simply means that the movement has been so large that it has stretched the rectum and in this way ruptured some of the smaller blood-vessels, thus coating the baby's movement. In order to overcome this, food should be properly changed in order to overcome the constipation, and milk of magnesia administered.

### Constipation

Much of the constipation from which infants suffer is produced by interference by the nurse or other attendants during the first few weeks of life. The bowels will not move normally unless the lower part of the rectum is full of fecal matter. During the first week of life an infant usually gets little food. After the meconium is passed there are several days required before there is much residue left over from the food. If during this time the infant is given castor-oil, suppositories, or injections, the normal process is interfered with at the

outset and the proper stimulus in the rectum is lacking. The result is that by the time the nurse goes the infant has the "constipation habit." If breast (or, for that matter, bottle) babies were allowed to go a day or two until their bowels moved of themselves, there would be less constipation.

Where constipation is present in breast infants cathartics as a routine should not be given. Frequently a teaspoon of prune-juice before or after nursing will correct the difficulty. Another good plan is to give one or two teaspoons of olive-oil each day. If the baby has not had a stool for two or three days, he should be given a small enema of two or three ounces of warm soap-suds or a plain soap suppository. Milk of magnesia may then be given to insure a movement the next day. Enemas and suppositories should not be given over long periods of time; irritation of the rectum may result. If there are not regular movements the advice of a physician should be sought.

Constipation is due to a variety of causes, but can usually be overcome by changes in diet without the use of drugs. In general the following are the most important points to bear in mind: First, there should be a regular time for bowel movements, and this time should be kept as rigidly as the other routine matters of a baby's life. This time should not be crowded because of inconvenience to the family. Second, the child should have plenty of liquids in the twenty-four hours. All babies should be taught to drink water, boiled, until the baby is a year old, and longer if there is any doubt at all about the purity of the water-supply. An infant by the first few months should be taking one to two ounces of water in the twenty-four hours and after that increasing to six

to eight ounces at one year of age. Third, diet, orange-juice and prune-juice will help very much in making a soft movement. Frequently too little fat or too much fat causes constipation. This should be investigated by the physician. In older infants coarse cereals should be used and coarse bread-stuffs given in place of bread made from finely ground flour. Vegetables, especially those with a good deal of fiber, should be given to infants old enough to take them. The object of these measures is to add bulk to the movements. Fourth, massage is helpful. Sometimes benefit is obtained by rubbing the abdomen just before the time for a movement. One should begin in the lower right-hand portion and rub upwards, then to the left, and then down.

## CHAPTER XVI

SPECIAL PREPARATION OF MILK; PROPRIETARY FOODS

### Peptonization of Milk

Peptonized milk is made by adding a certain amount of pancreatic ferment to cow's milk and bringing the mixture to the body-temperature for a given time. In view of recent knowledge it is extremely doubtful if peptonized milk has any virtues whatsoever. It should never be employed except under the direction of a physician.

### Buttermilk and Lactic Acid Milk

Buttermilk is sour milk from which the fat has been almost completely removed. It is usually obtained as a by-product in the process of making butter. It may, however, be made by souring either skim-milk or whole milk, according to the amount of fat required.

The best procedure for the preparation of lactic acid milk is as follows: A pure culture of the lactic acid bacillus (or *Streptococcus lacticus*) may be obtained from certain drug firms or laboratories either in tablet or liquid form. Remove four cream-dippers from top of quart-bottle of milk, shake up the remainder, and bring it to the boiling point. Cool to 70 degrees. Then add three tablespoonfuls of lactic acid culture obtained from a milk laboratory. Cover with a towel and keep at 70 degrees from twelve to fifteen hours and cool. When it is cool, take out three tablespoonfuls and keep them for

the next day's culture. Then beat it with an egg-beater until it is smooth, not frothy.

Buttermilk and sour milk have been used as an article of diet from time immemorial; they are mentioned more than once in the Old Testament. It is, however, comparatively recently that they have been used in this country as a food for infants. In Holland, however, buttermilk has been used as a remedy for the summer diarrheas of infants for several hundred years.

**Uses of Buttermilk**

In certain conditions, especially where fat is not well tolerated, buttermilk may be given to advantage. In diarrhea, especially in that form produced by overfeeding with fat, the use of buttermilk is often followed by satisfactory results. Since buttermilk is usually prescribed for babies who stand fat badly, care should be taken to specify skimmed milk.

Buttermilk should always be made from clean milk and made fresh each day. It is better digested if the milk is first boiled before the lactic acid culture is introduced. Its food-value may be increased by adding wheat flour or Dextri-Maltose or even corn syrup.

**Protein Milk**

This is a preparation made from cow's milk and is probably the most effective weapon that a physician has at his disposal for treating cases of diarrhea and certain forms of indigestion in infants and young children. Its action depends upon the fact that most of the sugar and a moderate proportion of the fat are removed.

The principle in the preparation of the milk is the curdling of whole milk with rennet and then straining off

the whey (which contains the sugar) through cheese-cloth. The whey is thrown away and the curds mixed with buttermilk, forming a smooth mixture like the original milk. To this is added a certain amount of water, and the mixture is ready for use. On account of the many technical difficulties encountered in the preparation of this mixture in the private home, a powder has been prepared which with proper dilution with water closely resembles the original formula. The results with the powder have been found to be just as good as those obtained from the more complicated liquid preparations.

This corrective food should only be employed under the direction of a physician. Infants have been known to gain and thrive on this milk mixture for months and show perfect bone development, but under ordinary circumstances it is only employed as a corrective food; this preparation is known as Protein Milk Powder and is manufactured by Canada Milk Products, Ltd., Toronto, and Merrill Soule Company, Syracuse.

### Patent or Proprietary Foods

The foods on the market prepared for purposes of infant feeding are almost without number. From our knowledge of the composition of mother's milk we learn what are the nutritional elements and approximately in what relative proportions these elements must exist in order to supply the child with the food which Nature intended him to have. The examination of the milk of thousands of nursing women shows that it ranges from 2.5 to 4 per cent fat, 6 to 7 per cent sugar, and 1 to 1.5 per cent protein. These figures may be put down as the normal limits of human milk, and they are so, simply because the infant will thrive and grow when the nutri-

tional elements in approximately the above proportions are supplied to him. It is within these limits that the food must be kept in order that there may be normal growth and development, though, of course, wide variations from these may be of temporary occurrence. While the child may exist and temporarily do fairly well on a lower percentage of fat, he will invariably show defective growth if the protein remains persistently under 1 per cent. The chief disadvantage in the infant foods that are used without the addition of cow's milk lies in the fact that they do not contain the nutritional elements as they exist in normal breast-milk; and, besides, of necessity, they are all cooked foods, and in the heating process all or part of the so-called growth elements are removed. It is not well to put too much reliance on the analyses sometimes published by the proprietary food manufacturer.

This type of food is decidedly weak in animal fat for the reason that there is no means of keeping more than a small percentage of it in food without its becoming rancid. When large percentages are indicated in the analysis it is certain that it does not exist as butter-fat. The quantity of animal milk protein is likewise deficient, and what is present has been cooked, thus detracting materially from its value in infant nutrition. Both scurvy and rickets are not an infrequent result of the exclusive use of these foods.

**Dried Milk**

Dried milk products are prepared by a special process in which the water is removed from the cow's milk, and it has been fairly well proved that the growth elements are present in full force. Dried whole milk is there-

fore a satisfactory food for infants if given in proper dilutions under the supervision of a physician.

They are especially useful as a temporary measure in cases of acute illness or in traveling. The product known as Klim Brand whole milk powder (C. M. P.) may be employed with solid food in feeding older children when fresh clean milk is not obtainable.

### Proprietary Foods to Which Fresh Cow's Milk is Added

Proprietary foods to which fresh cow's milk is added are not foods in the usual acceptation of the term, and if they are used alone independently of milk the patient will soon present a sorry spectacle. They are sugars largely, being composed of maltose and dextrine, which are derived from starch. Some contain a considerable quantity of unconverted starch. When added to the water and milk mixture, they furnish the soluble and insoluble carbohydrates in the form of matter and free starch, and thus they fulfil this function in the food with results as good as would milk-sugar and a cereal gruel, but usually no better. Maltose is a laxative sugar. In cases of constipation in the bottle-fed child it may replace the milk sugar in equal quantity and as such may be used with decided benefit in some cases. In other cases this change to maltose is without effect. The assertion that when added to cow's milk these proprietary foods increase the liability to scurvy is without foundation. If the milk is given uncooked, the child will not have scurvy, regardless of the nature of the sugar; if the milk is heated to 160 or 175 degrees, the child may have scurvy regardless of the sugar.

"The exploiting of photographs of crowing, fat, red-

cheeked babies which are used to illustrate the supposed virtues of this or that manufacturer's food composed principally of maltose is not a very high-minded procedure on the part of the manufacturer who thus stoops to steal the credit which belongs to a cow."

**How to Give the Baby the Bottle**

When it is time to feed the baby, take the cold bottle from the ice, and do not pour out the milk, but place the bottle, still corked, in a vessel of warm water, having the water cover the bottle above the milk line, and allow the water to heat. Do not allow the water to boil, as that will make the milk too hot. To test the temperature of the milk, open the bottle and drop a little milk on the inner surface of the arm. If it feels comfortably warm to the mother's skin, it will be right for the baby. If it has been made too hot, cool the bottle under running water. The mother should never put the nipple in her own mouth to test the temperature of the milk, as an infection such as a "cold" might easily be conveyed in this way from mother to baby. Put on one of the sterile nipples from the jar. Handle the nipple only by the neck, and do not touch the part that is to go into the baby's mouth.

Hold the baby on the left arm in the same position as for breast feeding. The bottle should be held by the mother or nurse throughout the feeding and never propped on a pillow. It must be presented to the baby at such an angle that the neck of the bottle is kept continually filled and the baby is able to grasp the nipple squarely. The feeding should be finished in twenty minutes. If the baby eats greedily, withdraw the nipple for a moment several times during the feeding, or, better

still, make the hole in the nipple smaller. If he is sleepy, keep him awake until the bottle is finished. If, in spite of this, he falls asleep, remove the bottle and do not give another until the next feeding-time. Babies like to nurse a little, then sleep a little, then take the bottle again; but this should not be allowed, as it unduly prolongs the feeding.

# CHAPTER XVII

## FEEDING OF THE CHILD AFTER THE FIRST YEAR: GENERAL PRINCIPLES TO OBSERVE [1]

### Susceptibility of Children to Changes

After the completion of the twelfth month the average well regulated baby should be weaned and other nourishment given. If bottle-fed, he should receive more than the milk and the cereals with which most children are fed. The food suitable for the second year of life and the method of its preparation and administration are subjects upon which the masses are most profoundly ignorant. A few children at this period of life are underfed, but the great majority are overfed; they are carelessly given, at improper intervals, unsuitable food, wretchedly cooked. Summer diarrhea finds its greatest number of victims among those children more than twelve months of age who have been carelessly fed. The dreaded "second summer" robs many homes because of ignorant or careless parents. The second summer managed properly is hardly more dangerous than any other summer during the early years of a child's life. It is almost a universal custom, when the child is weaned or given something other than a milk diet, to allow him "tastes" from the table. Very often these tastes comprise the

[1] For much of the material contained in this chapter the author is indebted to the New York City Health Dept. Bulletin 1918.

entire dietary of the adult. Milk is oftentimes the only suitable article of diet that is given. Afterward not only is the other food selected unsuitable, but it is given irregularly, and supplemented by crackers kept on hand for use between meals. During the hot months the gastro-intestinal tract is less able to bear such abuse, and the child becomes ill. Usually when the twelfth month is completed the mother should have a diet-schedule with instructions to begin gradually with the articles allowed in order to test the child's ability to digest them. Every new article of food should be carefully prepared and given at first in very small quantities. All meals should be given regularly, with nothing between meals. With many children this expansion of the diet-list is attended with considerable difficulty. They are thoroughly satisfied with the milk and refuse all other forms of nourishment. In such cases time and patience are necessary at the feeding-time. The more solid food articles of diet should be given first, and the milk kept in the background.

Among the underfed seen at this period of life are those who were nursed too long or those who were kept too long upon an exclusive milk diet. A great majority of the cases of malnutrition of the second year are seen in the exclusively milk-fed. They are pale, soft, flabby, badly nourished children.

### Dining with Adults

A child should never dine with adults until he can have adult diet, if the circumstances of the family will permit him to dine alone or with other children. It is a species of cruelty to expect a hungry child of tender age to sit at the table, see and smell fragrant dishes, and

be forced to content himself with his restricted fare without complaining.

**Method of Feeding**

In feeding, the spoon or fork must come in contact with the food and the child's mouth only; when not in use it should not be allowed to rest on the clean table-cloth. If it falls to the floor by accident, it should be dipped in boiling water before using it. Under no circumstances should a feeding utensil be allowed to come in contact with the lips of the nurse or mother; time and again one sees mothers and nurses sip or swallow the first teaspoonful of the food that is to be given, to determine if it is of the proper temperature. At other times, when the food is not particularly attractive to the child, they will place the spoon in their mouths as though they intend to take it themselves. Others will remove from the spoon with their own lips adhering particles of food. There are few more reprehensible practices than the foregoing, and if parents knew the dangers to which their children are thus subjected they would not for an instant tolerate them. Any one of the many forms of pathogenic bacteria may be most readily transferred to the mouth of the child in this way. It is unquestionably a means of infection with tuberculosis, diphtheria, and syphilis. The germs of tuberculosis and diphtheria are frequently found in the mouths of perfectly healthy adults. They cause no symptoms of disease because of the normal power of resistance of such adults. The resisting powers of the child, however, to these microorganisms are very slight; and when they are carried to the delicate mucous membrane of the infant's mouth and throat, they thrive actively. The child develops

diphtheria or tuberculosis, and the family grieve and wonder how the child could ever have contracted the disease.

### Appetite

It may be safely said that a well, vigorous child is a hungry child; and nearly every child may be made thoroughly hungry three times a day by giving suitable food at proper intervals. The children who come to a physician for poor appetite without evidence of disease to account for it are, almost without exception, improperly fed. They are often given unsuitable food at meal-time, when they are loaded down with sweets and pastries; but the chief error is eating between meals. This habit has ruined more appetites and has been the cause of more stomach disorders than any other one factor. It is surprising what a large amount of candy, sweet crackers, and the like are disposed of in many households.

### Excessive Milk Drinking

Every year physicians are called upon to treat cases of loss of appetite in "runabouts" from eighteen months to three years of age, who have what is designated the milk habit. These children drink from five to six pints of milk a day, and refuse all other food. The milk satisfies the appetite but does not furnish the nourishment required for the rapid growth that takes place at this time, and the child in consequence suffers from malnutrition. He is pale, thin, and sallow in appearance. The sleep is poor, and the child is irritable and hard to please. We also see children at this age who suffer from

improper nutrition on account of too restricted a diet. They take other food than milk, but not in sufficient quantity or variety. Some will refuse all kinds of vegetables; others will refuse all kinds but one or two; some will not take stewed fruit; others will not touch meat or eggs, no matter how they may be prepared; some will take but one cereal, others will refuse cereals altogether. The child's whims in these respects must never be catered to. He is to take what is placed before him, or go without until the next meal. Likes or dislikes for various articles of diet are largely a matter of education, and the child may and should be taught to eat everything that is good for him. A little firmness in compelling him to go hungry for a few hours will soon do away with any childish fancy, which may be the cause of considerable harm.

**Lack of Variety of Food**

These children are growing rapidly, and for proper growth and development they require a mixed diet. If the child is wedded to milk and refuses everything else, the milk must be temporarily discontinued. Some children with a poor appetite for solids will drink a glass or two of milk at the commencement of a meal. This satisfies the appetite for the time being, and nothing more will be taken. With such children the milk must be kept out of sight until the meal is completed, when a half-pint may be given.

**Management of Children with Poor Appetite**

The best way to manage cases of poor appetite and milk appetite in children otherwise well is in the following

manner: The child is undressed and placed in bed and put under the care of one person, as though he were very ill. The object in placing the patient in bed is to prevent his getting food other than what is ordered. He is allowed water to drink in plenty. For the first day he is given four ounces of plain chicken- or mutton-broth every three hours. The second day he receives six to eight ounces of the broth at three-hour intervals. On the third day he is unusually ravenously hungry, and he is then given three or four good meals. If he has any special dislike for any article of diet, that is included in the first meal. In such cases it is surprising with what favor the formerly despised cereal, meat, egg, or vegetable will be looked upon; and it will thereafter have a cherished place in the child's heart. Some mothers will not be a party to such heartless treatment, as they are inclined to call it; but this is a wrong view to take of it. A complete change of diet for a day or two would often be of benefit to all of us. With the child the advantage derived from thus learning to enjoy a mixed diet will favorably influence his health for the rest of his life. Change of climate, fresh air, out-of-door exercise, suitable food at regular intervals, all favorably affect the appetite.

Children who over-exert themselves at school or at play, or who are easily excited and have plenty of opportunity for excitement, often suffer from loss of appetite. The management of these cases is to remove the source of the trouble, whatever it may be. An excellent means of bringing these children to normal condition is an enforced rest for one and a half hours after the noonday meal.

### The Scientific Construction of a Child's Diet

From the very beginning of life the child that is to develop normally must have sufficient and suitable food. Many thousands of babies die before birth, or soon after, because of the illness, overwork, or underfeeding of their mothers during the nine months of prenatal life. Some who are fortunate in being a little stronger at birth may survive but require special care to make up for their poor start. Many babies, puny at birth, may be built up into strong children by judicious feeding.

A study of the directions for feeding the baby will show that his dietary is slowly and cautiously enlarged as he grows older, by adding to the exclusive diet of infancy cereals, fruits, a few vegetables, soups, and a little meat, and by giving somewhat greater quantities at each feeding. The same plan is followed throughout childhood, but for the first five or six years the diet should still be restricted to those foods that best supply the requirements of healthy growth and are at the same time adapted to the child's digestive powers. One of the most troublesome conditions that affect children is malnutrition. This means that the child cannot draw enough suitable nutriment from the food he eats to supply all his bodily needs.

### Malnutrition

This condition may be due to actual lack of food. Here the remedy is plain. But the children of well-to-do families often suffer from serious malnutrition. This is due in some cases to badly selected and badly prepared food; in others, to overeating or irregularity in eating, or to illness, to congenital defects in the diges-

tive organs, to lost or decayed teeth, and to more obscure causes. Undoubtedly one important cause of malnutrition is a lack of knowledge of the fundamental principles underlying the proper selection of foods, and of the best methods of preparation for the table.

Mothers who boast smilingly that their babies "eat everything" forget that the child's digestive organs are no more capable of dealing with all the foods that grown people eat than are the bones, muscles, and brain capable of doing the work of grown people.

The stomach and the intestines, like other organs of the body, must be trained gradually to harder work, until by slow degrees they become accustomed to dealing with foods eaten by adults. An important part of the feeding of children lies in the selection of certain foods for this training. It is a serious error to assume that a child's special dietary needs can always be supplied adequately by the foods appearing on the family table, and that the methods of preparing and cooking them are always suitable for children. Many articles that may be digested by adults, such as baked beans, boiled cabbage, pastry, fritters, and fried food, and certain methods of cooking these articles for grown persons, are distinctly bad for children.

### The Selection of the Diet

Experience has shown that humans thrive best on a mixed diet of animal and vegetable foods, because from such a diet the body can most readily obtain the materials it needs for growth, repair, and operation.

A well chosen diet is one which supplies all these materials in suitable proportion; a "deficiency" diet is one in which one or more of the essential food substances (vitamines) is wholly or partially lacking.

**Elements of the Diet**

1 MINERAL SUBSTANCES—OF GREAT VARIETY (LIME SALTS, COMPOUNDS OF PHOSPHORUS, IRON, AND OTHERS). These are used by the body for building material, and are found in all parts of it. They also produce substances within the body-tissues, which tend to offset acid substance produced in the tissues in the course of digestion of meats and cereals, and serve many other important uses. Without fruits and vegetables the meats would be likely to lack certain mineral substances. Without milk they would be lacking in a mineral substance.

2 PROTEIN. Protein serves as fuel for the body and also provides a certain element, nitrogen, which is needed in children for growth and body repair. Without the meat or meat substitutes (including milk) the meals would be lacking in this body-building material.

3 CARBOHYDRATE. (a) Starch. This is supplied mainly by the cereal foods and is one of the chief sources of fuel for the body.

(b) Sugar. This serves also as fuel for the body and to flavor the food. It is present in milk, fresh fruits, and many other materials. Added sugar (except for flavoring purposes) should not be used in the dietary of runabout children, as it promotes dental decay and is very prone to cause sugar indigestion, besides being unnecessary.

4 FAT. This serves as body fuel and also improves the flavor and texture of the food. It is present in meats, nuts, and many other foods, but unless small amounts of specially fat materials, like butter, oil, etc., are used, the meats are likely to be lacking in it.

5 CELLULOSE. This is the material that makes up the framework of plants. It gives bulk to the diet and

tends to prevent constipation. Without fruits and vegetables the meats would be lacking in this important element.

6 VITAMINES OR GROWTH ELEMENTS. These are believed to play an important part in keeping people well and in promoting the growth of children. Without milk in the diet some of these substances, particularly those necessary for children, would be lacking; and without meat, milk, eggs, fruit, and vegetables others needed by persons of all ages might not be present in sufficient amounts.

The purpose of the following remarks is to supply for children of these ages a diet which is:

1 Sufficient, i. e., a balanced diet furnishing enough for repair and healthy growth.

2 Digestible, excluding articles that are difficult of digestion for young children.

3 Economical.

The amount of food needed daily by a healthy child of from two to four years is estimated to be from 1200 to 1400 food units (calories). The amount needed by a child from four to seven years is from 1400 to 1700 food units (calories). The food substances that must be supplied in the diet are:

1 Fat.

2 Carbohydrate (sugar or starch).

3 Protein.

Besides these main substances as previously mentioned, there are other elements in the diet that must be considered; namely, water, certain salts, and substances spoken of as vitamines. Not only are all of these necessary, but they must be furnished in certain propor-

tions to maintain health. It is possible to fulfil the requirements of a proper diet, meet the condition of unusual prices, and still have a wide choice of foods.

### Fat

Both animal and vegetable fats are useful as foods. In the following tables the fats are arranged according to their food-value and their price per pound, the cheapest and lowest food-value being first in the list:

1 Cotton-seed oil.
2 Oleomargarine.
3 Peanut-butter.
4 Butter.
5 Olive-oil.
6 Bacon.
7 Cream (extra heavy 40 per cent).
8 Bacon, sliced, in jars.

Animal fats are superior to vegetable fats as foods. Of the animal fats, oleomargarine is altogether the most economical; its wider use is to be recommended.

### Carbohydrates

The carbohydrates include cereals, vegetables, breadstuffs, and sugar.

1 CEREALS. These may be purchased in bulk (loose) or in special packages, the latter being always more expensive. The following cereals are arranged according to their food-value and price by the pound:

1 Cornmeal, in bulk.
2 Hominy, in bulk.
3 Broken rice, in bulk.
4 Oatmeal, in bulk.
5 Pettijohn, in package.
6 Cream of wheat in package.
7 Farina, in package.
8 Cracked wheat, in bulk.
9 Quaker Oats, in package.
10 Macaroni, in package.
11 Wheat flour, in bulk.
12 Malt breakfast-food, in package.

13 Pearl barley, in bulk.
14 Barley flour, in bulk.
15 Whole rice, in bulk.
16 Wheatena, in package.

To be recommended as the cheapest, if purchased in bulk, are oatmeal, cornmeal, hominy, and rice. All cereals should be cooked at least four hours and preferably in a fireless cooker.

2 VEGETABLES. The following vegetables are suitable:

1 Turnips.
2 Sweet potatoes.
3 White potatoes.
4 New beets.
5 Onions.
6 Spinach.
7 Green peas.
8 Lima beans.
9 Cauliflower.
10 Carrots.
11 String beans.
12 Squash (cooked).
13 Lettuce (cooked).
14 Celery (cooked).

No raw vegetables, such as radishes, tomatoes, cucumbers, onions, or celery, should be given; also no green corn peppers, egg-plant, or cabbage. The value of vegetables depends not only upon the amount of fat, carbohydrates, and protein they contain, but also upon their richness in iron and other important salts, and upon the amount of fiber, which aids proper action of the bowels. They are indispensable to a proper diet. Of particular value are spinach, beet-tops, chard, and other "pot greens."

3 BREAD-STUFFS. The following list gives the relative food-value and price of certain bread-stuffs:

1 Graham bread.
2 White bread.
3 Rye bread.
4 Wheatsworth biscuits.

Bread should be stale (two days old) or dried on the stove or in the oven until crisp. Crackers usually cost much more than bread of equal food-value. Hot bread or rolls, griddle-cakes and doughnuts should not be given.

**Protein Foods**

Attention is called to the fact that the protein foods as a class cost more than either the fats or the carbohydrates. One of the greatest difficulties to be overcome in furnishing a proper diet at moderate cost is to supply the proteins in the amount needed. Altogether the cheapest and best protein for children is that found in milk. Others follow in this order:

| | |
|---|---|
| Milk. | Young codfish (fresh). |
| Roast beef. | Chicken (roasting). |
| Buttermilk. | Eggs. |
| Lamb chops (loin). | Beefsteak (round). |
| Lamb chops (rib). | Haddock. |

At certain seasons and in certain places other varieties of fresh fish are cheap and useful. Some vegetables are very high in protein and may largely replace meat in the diet. Such are the various kinds of beans and peas, either fresh or dried; they may well be given as soups. If these are furnished, together with milk and bread, meat may be dispensed with altogether. Of the cereals, the preparations of wheat and oats contain most protein.

Sausage, pork, ham, liver, smoked, salt, or dried fish are not to be given to young children.

**Fruits**

The following fruits are available:

Fresh in Season:

| | |
|---|---|
| Grapes. | Pears. |
| Bananas. | Oranges. |
| Apples. | Peaches. |

Dried:

| | |
|---|---|
| Prunes. | Peaches. |
| Apples. | Apricots. |

Many fresh fruits are too expensive for general use, except for short periods when they are in season and abundant; at such times they should be used freely. Berries, cherries, pineapples, and plums should not be given, since they are not easily digested and are usually expensive. Stale fruit, unripe fruit, or fruit out of season should not be given to young children.

Bananas should not be given raw unless thoroughly ripe; all others are difficult of digestion unless cooked (baked or boiled).

The more extensive use of stewed dried fruits should be urged. They are to be preferred to much of the fresh fruit that is sold. Fruit should be given with the other food, not between meals.

**Desserts**

The desserts permitted young children are plain puddings made from rice, farina, corn-starch, or stale bread, custard, and junket.

Forbidden are pies, pastry, and rich cakes, particularly those made with nuts and dried fruit.

**Drinks**

There should be milk, not less than a pint nor more than a quart, for each child daily. For the younger

children milk is indispensable, and even at its high prices it is cheaper than any other food of equal value. Cocoa made with milk may be substituted for milk in cold weather. Water should be given freely between meals; a child of five should drink from two to four glasses daily.

Tea, coffee, wine, beer, cider, and soda-water should not be given to children.

### Habits to be Avoided

Food should not be given at other than regular meal-times.

A child should not be allowed to make his entire meal from any one article of food, such as milk, potato, meat, etc.

A child must be taught to chew his food; much drinking with meals encourages rapid eating, and should not be permitted.

When a child has lost his appetite, coaxing or forcing food should be avoided; also all feeding between regular meals. I know of no greater contributing factor towards digestive upsets than coaxing a child to eat.

### Diet from Twelve to Fifteen Months

The following diet is suitable to the period from twelve to fifteen months:

6 A. M. Bottle of formula No. 10, (p. 123).

9 A. M. Orange-juice.

10 A. M. Farina or cream of wheat (cooked four hours), served with the formula. Drink of formula. Bread-stuffs.

2 P. M. Half a soft-boiled egg mixed with bread-crumbs, gradually increasing to a whole egg. Alternate

with vegetable-soup. Dessert: custard, corn-starch, or junket. Bread-stuffs. No milk at this meal.

6 P. M. Same as 10 A. M.

10 P. M. Bottle of formula. Bread-stuffs.

Depending upon the appetite of the infant, farina (which has been cooked four hours) is usually commenced between the eight and tenth months, beginning with one tablespoon and increasing to two or three tablespoons at the 10 A. M. and 6 P. M., hours with two or three ounces of formula over it. When the teeth come through either a zwieback or Wheatsworth biscuit (F. H. Bennett Biscuit Company, New York, or Barron's, Toronto) may be given after each meal. The Wheatsworth biscuits are slightly laxative and should be used accordingly. From the tenth month, milk may be increased a half-ounce each week and the water decreased a proportionate amount till at one year the infant is taking whole milk. After the tenth month the sugar should be reduced to a half-ounce and gradually eliminated up to one year.

Vegetable soup should be made as follows:

1 medium-sized potato.
1 small beet.
1 carrot.
1 piece of celery.
Pinch of salt.

Cook one hour boiling. Strain and serve 6 to 8 ounces. The vegetables should be pressed through the sieve.

The amount of cereal should rarely exceed three rounded tablespoons when cooked, and one average teacup of dessert. It is usually wise to begin with a few

teaspoons of the vegetable soup, increasing it cautiously, as it tends to loosen the bowels. Occasionally it is wise to substitute the babies' milk formula for the soup if it proves too laxative.

The formula mentioned on the diet for from twelve to fifteen months should consist of the milk dilution that the baby is having at this particular age which is usually:

30 ounces whole milk (boiled),
10 ounces water (boiled),
1 level teaspoon granulated sugar,

or, in lieu of this, plain boiled skim-milk (four cream-dippers removed from the quart and the remainder shaken up and used) may be employed without any added sugar.

### Cooking

All cereals should be cooked four hours. They may be cooked in a double boiler or in a fireless cooker, which is the simplest and much the most economical, if gas is used.

All vegetables should be thoroughly cooked, the green ones in very little water. They should be finely mashed, or, better, rubbed through a coarse sieve. Potatoes should be boiled with the skins on and peeled afterwards; by ordinary peeling before cooking at least one sixth of the potato is wasted.

Meats should be roasted, broiled, or boiled; neither meat, chicken, nor fish should be fried; roast or boiled meat should be given rare.

Eggs should be soft-boiled, coddled, poached, or scrambled.

Meat-stews, such as are made from neck of mutton

with potatoes and other vegetables, are to be recommended, provided they are thoroughly cooked and the fat has been removed.

Clear soups have almost no food value, but meat-soups to which vegetables and barley or rice are added are useful food. Thick soups, especially those made from peas and beans with the addition of milk, are very nutritious and cheap and can largely replace meat and eggs in the diet.

**Feeding from Fifteen to Twenty Months**

The following diet is suited to the period from fifteen to twenty months:

N.B. Commence each new article in small quantities, one at a time, and watch the result of each food added.

7 A. M. Cornmeal, oatmeal, hominy, wheatena, rice, farina, or cream of wheat (cooked four hours), served with butter or milk. Drink of milk. Bread-stuffs.

9 A. M. Juice of an orange (should be omitted if the bowels are loose).

11 A. M. Scraped steak mixed with bread-crumbs and moistened with beef-juice. Alternate with soft-boiled egg mixed with bread-crumbs. Baked potato. Drink of milk. Bread-stuffs.

2:30 P. M. Chicken or mutton-broth with bread or rice in it. Custard, corn-starch, or junket. Bread-stuffs. No milk at this meal.

6 P. M. Same as 7 A. M.

10 P. M. Drink of milk if wanted.

No sugar on food; no candy, cake, biscuits, jam, jelly, honey, or ice-cream.

The following bread-stuffs should be used: dried

bread and butter, zwieback, and Wheatsworth biscuits, from F. H. Bennett Biscuit Company, New York, or Barrons, 728 Yonge Street, Toronto. Not more than one teaspoon of the steak should be given at first, and this amount may be gradually increased up to one or one and a half tablespoons. One medium-sized potato is sufficient, and the same amount of dessert as previously mentioned.

The broth tends to produce lax bowels and should be used cautiously at first.

**Feeding from Twenty to Twenty-Six Months**

The following diet is suitable to the period from twenty to twenty-six months:

7 A. M. Cornmeal, oatmeal, wheatena, hominy, rice farina, or cream of wheat (cooked four hours), served with butter or milk. Drink of milk. Bread-stuffs.

9 A. M. Juice of orange.

11 A. M. Scraped steak, minced chicken, soft-boiled egg. Baked or mashed potato, spinach, asparagus, string-beans, peas, squash, white turnip, stewed carrots. Desserts: stewed or baked apple, stewed prunes, stewed berries, in season, except strawberries. Bread-stuffs. No milk at this meal.

2:30 P. M. Chicken or mutton-broth with bread or rice in it. Custard, corn-starch, or junket. Bread-stuffs. No milk to drink at this meal.

6 P. M. Same as 7 A. M.

No sugar on food; no candy, cake, biscuits, jam, jelly, honey, or ice-cream.

Bread-stuffs: plain dry bread and butter, zwieback, and Wheatsworth biscuits.

### Quantities of Food

The following quantities of food are proper:

Cereal: three to four rounded tablespoons.

Meat: one to three rounded tablespoons.

Vegetables: one to three rounded tablespoons.

Desserts: one average cup, or one to three tablespoons of apple-sauce, or two to three prunes with juice.

The vegetables at first should be put through a sieve, and later, if the child digests these well, they may be finely cut instead of being put through a sieve.

Milk: one large cup at the morning and evening meal.

### Feeding from Twenty-Six Months to Eight Years of Age

The following diet is proper from twenty-six months to eight years:

7:30 to 8 A. M. Cornmeal, oatmeal, hominy, wheatena, rice, farina, or cream of wheat (cooked four hours), served with butter or milk. Soft-boiled, scrambled, or poached egg, bacon or minced chicken, Drink of milk. Bread-stuffs.

9 A. M. Juice of orange.

12 o'clock. Steak, lamb chop, rare roast beef, poultry, or halibut or codfish, any fresh-water fish. Baked or mashed potato, spinach, asparagus, string-beans, peas. squash, white turnip, stewed carrots, stewed celery, stewed onions, mashed cauliflower. Dessert: stewed or baked apple, stewed prunes, rice or bread or tapioca pudding. Stewed berries in season, except strawberries. Bread-stuffs. No milk at this meal. Rest one and one half hours after this meal.

4 P. M. Raw apple, pear, or grapes (should not be given to children under four years of age).

6 P. M. Any of the above-mentioned cereals or vegetables and dessert. Custard, corn-starch, or junket. Drink of milk. Bread-stuffs. No sugar on food; no candy, cake, biscuits, jam, jelly, honey, or ice-cream.

Bread-stuffs: brown bread and white bread and butter, whole wheat bread, zwieback, and Wheatsworth biscuits.

The quantities for the next two years remain approximately the same as in the previous schedule. After this, however, they may be increased by one or two rounded tablespoons if the appetite requires it.

**Diet for Constipation in Children over Two Years**

The following diet is suitable for constipation in children over two years old:

7:30 to 8 A. M. Cornmeal, oatmeal, hominy, wheatena, roman meal, farina, or cream of wheat (cooked four hours), served with butter or milk. Bacon, minced chicken, or soft-boiled, poached, or scrambled egg. Drink of milk. Bread-stuffs.

9 A. M. Juice of two oranges.

12 o'clock. Steak, lamb chop, rare roast beef, poultry, or baked or boiled halibut or codfish; any fresh-water fish. Baked or mashed potato, spinach, asparagus, string-beans, peas, squash, white turnip, stewed carrots, stewed celery, stewed onions, mashed cauliflower. Desserts: stewed or baked apples, stewed prunes, stewed berries in season except strawberries, rice or bread or tapioca pudding, stewed rhubarb. Bread-stuffs. No milk to drink at this meal. Give potato only occasionally. Usually two of above vegetables at a meal. Rest one and one half hours after this meal.

4 P. M. Raw apple, pear, or grapes (not to be given under four years of age).

6 P. M. Any of the above-mentioned cereals or vegetables and a dessert: custard, corn-starch, or junket. Drink of milk or five teaspoons of malted milk to eight ounces water, occasionally adding one teaspoon cocoa. cocoa. Bread-stuffs. No sugar on food; no candy, Bread-stuffs. No sugar on food; no candy, cake, biscuits, jam, jelly, honey or ice-cream.
Wheatsworth biscuits, bran gems. Kellogg's bran may be sprinkled liberally over the cereals. Roman meal and oatmeal are the most laxative cereals.

**Bran Bread for Constipation**

Bran bread for constipation may be made as follows:

3 cups bran.
1½ cups graham flour.
1 cup white flour.
2 cups sweet milk.
¾ cup corn syrup.
1 teaspoon salt.
2 teaspoons baking-powder.

Let stand in pan for a half hour; then bake in slow oven for one and a quarter hours.

Do not buy bran in package but in bulk, as package bran is too fine.

**Bran Biscuits**

Bran biscuits may be made as follows:

2 cups bran.
½ cup flour.
1 tablespoon sugar.
2 teaspoons baking-powder

2 eggs.
1 teaspoon melted butter.

Mix dry ingredients, stir in melted butter, add eggs, mix thoroughly, add milk. Bake in a buttered tin.

# CHAPTER XVIII

## FOOD GROUPS AND RECIPES [1]

### Food Group No. 1: Milk and Dishes Made Chiefly from It; Fish, Poultry, Eggs, and Meat Substitutes

The different foods mentioned in the heading of this group have enough in common to warrant bringing them together. However, milk is such an important food for the children that it is desirable to speak of it by itself.

### Milk Served in Various Ways

Milk is the natural food for babies and the most important food for young children. A quart of milk a day is a good allowance for a child. The greater part of this is usually given as a drink or served on cereals or in the form of bread and milk. Milk may also be served on fruits that are not very acid (baked apples or pears, berries, and others), in soups, gravies, custard, junket, and other puddings, and may be used in place of water in cooking cereals.

Milk, being a liquid, is sometimes classed with water, tea, and coffee, simply as a beverage, by those who do not understand its value as food. This is a great mistake. If all the water were to be driven off from a quart of tea or coffee, almost nothing would be left, and the little that remained would have little or no value as food. If,

[1] For considerable material in this chapter the author is indebted to Bulletin No. 30 U. S. Dept. Labor.

on the other hand, the water were driven off from a quart of whole milk, there would be left about half a cupful of the very best food substances, including butter-fat as well as a kind of sugar not so sweet as granulated sugar and known as "milk sugar," and also materials that are needed to make muscles, bones, teeth, and other parts of the body. All these valuable foods-substances are ordinarily either dissolved or floating in the water of milk.

Besides all this nourishment, milk contains a very small amount of a substance or substances now thought to help the body of the child to make good use of other foods. For this reason milk is often said to be "growth promoting." Apparently nothing can serve so well as the basis for the diet of the healthy child.

Good whole milk is desirable, but if a mother is obliged to choose between clean milk and rich milk, she had better take the clean milk. Best of all, of course, is clean whole milk, but if that cannot be obtained it is better to use clean fresh skim-milk than dirty or questionable whole milk. A quart of skim-milk, even separator-skim-milk, contains about a third of a cupful of solid food, which is nearly all there is in the whole milk, except the butter-fat.

When it is absolutely impossible to get fresh milk, condensed, powdered, or evaporated milk may be used, but before doing this the parents should try in every way to get fresh milk for their children.

Compared with most other foods milk contains much lime but very little iron; spinach and other green vegetables and egg yolks are, on the other hand, very rich in iron.

When milk is given to babies, the chill is usually taken

from it. It is safe to do this for all young children. When milk is used as a drink, it should be sipped, not gulped down.

Besides being served as a beverage, milk is often combined with many other foods, as follows:

**Bread and Milk**

Bread and milk may be the chief dish, if not the only dish, in the supper of little children. If the milk is not very rich, the bread should be spread with butter. Use well baked bread at least a day old, or toast, or occasionally crackers.

**Cereals and Milk**

Thoroughly cooked cereals served once a day for the first course and once a day for dessert encourage the use of milk. Any cereal may be cooked in milk besides being served with it.

Skim-milk which might otherwise be thrown away may be used for this purpose. Rice, cooked in an uncovered boiler, or in a pan in a very "slow" oven, can be made to absorb six times its volume of skim-milk. To cook a cupful of rice in this way instead of in water may be considered equivalent, so far as tissue-forming materials are concerned, to serving it with half a pound of lean beef.

**Milk Toast**

The following is a good method for making milk toast. Put on the table hot crisp toast, or twice-baked bread and a pitcher of hot milk, slightly salted. One fourth of a teaspoon of salt to a cupful of milk is sufficient. Pour the milk over the toast as needed, using

hot bowls or deep saucers for serving. This is the easiest way of serving milk toast, and, if care is taken to have all the dishes hot and to salt the milk, it is usually acceptable. A supply of twice-baked bread can be kept on hand and heated to crisp it as it is needed.

Another way to make milk toast is to thicken milk and pour it over the toast. For one cup of milk allow one and one half level teaspoons of flour and one and one fourth of a teaspoon of salt. Make a smooth paste out of the flour, salt, and a little of the milk; heat the rest of the milk; add the flour and milk mixture; and boil for about five minutes, stirring constantly, or cook twenty minutes in a double boiler, stirring constantly at first, and frequently later on. If skim-milk is used, a level teaspoon of butter-fat should be added after the gravy is prepared.

Milk gravy may be combined with dried beef or salt codfish that has been cut into small pieces and soaked in warm water, or with small pieces of tender meat, chicken, fish, or vegetables. Such gravy may be served with toast, with baked or boiled potatoes, or with boiled rice or other cereals. Dishes of this kind are more suitable for dinner than for supper.

Milk toast with a hard-boiled egg grated over it makes an attractive dish. The whites of the hard-cooked eggs are not suitable for a young child, nor for any child unless they are finely chopped, nor unless the child can be made to chew them well.

### Cocoa

For variety, milk flavored with cocoa may be served. Prepared cocoa is the most convenient, but cracked cocoa

shells or nibs, which require long boiling, may be used. A warm drink made chiefly out of cocoa and water is not to be confused with the more nourishing drink made by flavoring milk with cocoa, but it has its uses. Like clear soups, which contain little food in themselves, it may lead the child to eat freely of bread and other needed foods.

### Milk Soups

Another good way to serve milk to children is in soups. Milk vegetable soups are made from cooked vegetables, chopped or strained, which in this form may be given to even the youngest children, and milk (whole or skim) slightly thickened. The vegetable may be asparagus, peas, beans of various kinds, celery, potatoes, turnips, carrots, spinach, kale, chard, beet-roots or greens, parsnips, lettuce, cress, cauliflower, or almost any other.

### General Recipe for Milk Vegetable Soups

The following is a general recipe for milk vegetable soups:

2 cups milk.
1 tablespoon flour.
1 tablespoon butter.
salt.
⅔ cupful of a thoroughly cooked vegetable, finely chopped, mashed, or put through a sieve.

Thicken the milk with the flour as for milk gravy; add the other ingredients. If the soup is too thick, as it may be if the vegetable is starchy, thin it with milk or water. Milk tomato soup is not to be recommended for the youngest children. When it is served a little soda should be added to prevent the milk from curdling.

**Milk Stew**

Milk stew may be made as follows:

1 quart milk.

1 cupful raw potatoes cut into small pieces.

2 tablespoons butter or bacon-fat.

1 cupful codfish cut into small pieces, or just enough to flavor the stew.

Soak the fish in lukewarm water until it is soft and the salt removed. Cook the potatoes until tender, drain them, add the milk and codfish, and bring to the boiling-point; add the butter and salt to taste.

In place of the codfish any other salt or fresh fish, oysters, or a little chipped beef may be used. Or the fish may be omitted and the soup made savory and palatable by adding a few drops of onion-juice or a vegetable cut into small pieces and cooked thoroughly.

**Cereal Milk Puddings**

Puddings made with milk and bread, rice, or some other cereal food have long been recognized as desirable in the child's diet.

Such milk puddings as old-fashioned rice or Indian pudding may be the means of serving much milk in a wholesome way. From the following recipe for rice pudding other recipes can be easily made, the proportions in all cases being about the same:

**Rice Pudding**

1 quart milk.

⅓ cup rice.

⅓ cup sugar.

½ teaspoon salt.

⅛ teaspoon ground nutmeg, or cinnamon, or the grated rind of ¼ lemon.

Wash the rice thoroughly, mix the ingredients, and bake three hours or more in a very slow oven, stirring occasionally at first. General Recipe for Cereal milk Puddings.

The following method is suited to the preparation of cereal milk puddings:

For a quart of milk allow one third of a cupful of any coarse cereal (rice, cornmeal, cracked wheat, oatmeal, or barley) and one third of a cupful of brown, white, or maple sugar, syrup, honey, or molasses; one half of a teaspoon of salt; one eighth of a teaspoon of spice. The flavoring may be omitted when honey or molasses is used.

The above recipe makes a large pudding. It is often convenient to make a smaller one, and enough for a child's dinner can be made in a double boiler, allowing two level or one rounded tablespoon each of cereal and of sugar (or other sweet) to a cupful of salted and flavored milk. Cook an hour or more without covering.

These puddings, if made thin, may be poured over stewed prunes or other cooked fruits, and are a good and economical substitute for the cream or soft custard usually used for that purpose.

### Custard and Other Milk Puddings

There are many other milk dishes that are used in the same way as this milk and cereal pudding. Recipes for some of them follow:

Junket, or "rennet custard," is milk that has been coagulated or curdled, a process not unlike one of the first steps in digestion. The curdling is brought about

by the addition of "junket tablets" to the milk. Milk containing rennet will, if not disturbed, "set" in one piece resembling a custard. Junket differs little from milk in food-value except for the presence of the sugar used for flavoring, but it gives variety to the diet. If served very cold, it is refreshing in warm weather. The following is the recipe for junket:

**Junket**

2 cupfuls milk.
¼ cupful sugar, honey, or syrup.
½ junket tablet.
⅛ teaspoon salt.
A few grains of nutmeg or cinnamon.

Warm the milk to about the temperature of the body, crush the tablet, and add it with the other ingredients to the milk. Pour into one large or several small dishes and place in a warm (not hot) place to set. Cool before serving.

**Boiled Custard**

For boiled custard:

3 egg yolks.
2 cupfuls milk.
¼ cupful sugar, honey, or syrup.
⅛ teaspoon salt.
Flavoring.

Heat the milk in a double boiler. Thoroughly mix the eggs and sugar, and pour the milk over them. Return the mixture to the double boiler and heat it until it thickens, stirring constantly. Cool and flavor. If the custard curdles, remove it from the fire and beat it with an egg-beater. This custard may be served in place of cream on many kinds of dessert.

### Floating Island

In floating island the whites of eggs left over from boiled custard can be used to serve with it. Beat the whites until stiff; sweeten them a little and cook them in a covered dish over water that is hot but not boiling; or cook them on top of the hot milk that is to be used in making custard. Lift them out with a wire egg-beater or split spoon, and place them on top of the custard. Decorate with small bits of jelly.

### Tapioca Custard

Tapioca custards may be made as follows: Add to the list of ingredients for boiled custard one fourth of a cupful of pearl tapicoa. Soak the tapioca in water for an hour or two, drain it, and cook in the milk until it is transparent. Proceed as for boiled custard.

### Baked Custard

In making, allow one egg and two level tablespoons of sugar and a few grains of salt and of nutmeg for each cupful of milk. Beat the eggs slightly and add the other ingredients. Bake in cups set in a pan of water in a moderate oven.

### Simple Ice-Cream

Ice-cream and frozen custard may be grouped with puddings. Plain ice-cream made of thin cream, sweetened and flavored, or of cream and custard mixed, may be given to children occasionally.

A good ice-cream may be made as follows: Allow one fourth of a cupful of sugar to each cupful of thin cream (half milk and half cream); flavor and freeze.

A frozen custard, commonly called by housekeepers

"ice-cream" or "French ice-cream," which contains eggs as well as milk and cream, may be made as follows: For each half-cupful of milk allow one fourth of a cupful of sugar, one or two egg yolks or one whole egg, and a half-cupful of cream. Make a custard of all the ingredients but the cream. When it is cool, flavor it, add the cream, and freeze.

**Caramel Flavoring for Use in Custards, Ice-Cream, and Other Desserts**

An economical flavoring for any of the above desserts may be made by browning or caramelizing ordinary sugar. To each cupful of sugar add one fourth of a cupful of water. Heat until well browned, stirring constantly even after the dish has been taken from the fire and until the danger of burning in the hot dish is passed. Before the mixture hardens, add hot water and cook until it is of about the consistency of thick syrup. Bottle and save for use as needed.

**Meat, Fish, Poultry, Eggs, and Meat Substitutes**

The other foods included in Group 1 with milk (considered by far the most important of them all for children) are meat, fish, eggs, and meat substitutes.

In some families children do not get enough meat and eggs; in others they get too much. A good general rule commonly followed is to give a child two years old or over an egg every other day and about the same amount (two ounces) of meat, fish, or poultry on the days that come between. If for any reason meat is omitted from the child's diet, special care must be taken to see that other suitable foods take its place, preferably an extra amount of milk or eggs.

Broiling or roasting are the best methods of preparing tender meat. Tough meat should be stewed in a fireless cooker, or first chopped and then broiled.

It is important to teach children to chew meat and other foods properly.

Fried meats, particularly those that are pan fried or cooked in a small amount of fat, should not be given to young children. One reason for this is that they are likely to be over-cooked and tough, at least on the outside, and are likely to be insufficiently chewed, and therefore to be swallowed in large pieces. Another reason is that the fat used in frying, and also that which fries out of the meat, is likely to be scorched and changed in composition. When this is the case, it is almost certain to be harmful.

Some recipes for cooking meat for children follow.

**Broiled Chopped Meat**

Many cuts of meat too tough to be broiled whole may be prepared very satisfactorily by being chopped, salted, and broiled. Allow about one half of a teaspoonful of salt to a pound of meat. For very little children the meat should be scraped instead of being chopped, for in this way the connective tissue is taken out. An egg or a little milk may also be added. The most important point is careful handling, for if the meat is pressed together it becomes tough and hard. If a wire broiler is used, the cakes should not be squeezed between the two sides. To avoid this, lay them on top of the broiler and turn them with a knife and fork.

**Meat-Stews**

Stews made of meat and vegetables offer a very great

variety of dishes, good in themselves, and good also because they encourage the eating of bread. The meat used, should of course, be in good condition but need not be from a tender cut. The lower-priced cuts may be used with good results, provided they are made tender by long, slow cooking. Any vegetable may be added, including the tougher parts of lettuce and the leaves of celery. Rice, barley, macaroni, or even crusts of stale bread may be used in the stew to give variety. A stew containing a little meat, with one or more vegetables and a cereal, comes near to supplying all the needed foods, other than milk.

For meat-stew:

2 pounds of one of the cheaper cuts of beef.

4 cups of potatoes cut into small pieces.

⅔ cup each of turnips and carrots cut into ½ inch cubes.

½ onion chopped.

¼ cup flour.

Salt.

Cut the meat into small pieces, cover with boiling water, boil for five minutes, and then cook at a lower temperature until the meat is tender. This will require about three hours on the stove, or five hours in the fireless cooker. Add the carrots, turnips, onions, and salt during the last hour of cooking, and the potatoes twenty minutes before serving. Thicken with the flour diluted with cold water. If the dish is made in the fireless cooker, the mixture must be reheated when the vegetables are put in.

There is much to be said in favor of keeping a soup-pot on the stove all the time, provided great care is taken not to allow the contents to grow stale. Into this pot

can go clean portions of uncooked food and also clean foods left from the table, such as meat, milk, mashed potatoes, or other vegetables, crusts, cold cereal mushes, and even fruits. Soups made from such materials may not have great nutritive value, but, like those made of materials bought for the purpose, they encourage the use of a large amount of bread, particularly if carefully seasoned.

**Poultry**

Chicken or turkey can be used for variety in a child's diet and are palatable stewed and served with rice. If roast chicken is used, select portions that are tender. It is well not to give a young child either highly seasoned stuffing (dressing) or rich gravy.

**Fish**

The use of cured fish, fresh fish, and oysters in stews has been spoken of above. Boiled or stewed fish is also good for variety.

**Meat Substitutes**

Milk and eggs, as stated above, are common meat substitutes. Among vegetable foods, dried beans, peas, lentils, and cow-peas, which are often classed together and called legumes, are the best substitutes for meat in the diet of older people, chiefly because they have large amounts of nitrogen needed for muscle-building. In this respect they have some advantage, though not a great one, over cereals. Beans and other legumes are not to be recommended for young children except when milk, eggs, fish, and poultry are not to be obtained. When used they should be cooked until they are reduced

to a mash. Since the skins are likely to be tough, it is well to put the cooked legumes through a sieve.

A general recipe for soups made from beans, peas, lentils, and other legumes follows:

**Soup from Dried Beans or Other Legumes**

1 cup dried legumes.
1 quart water or soup-stock.
2 tablespoons butter or savory fat.
2 tablespoons flour.
Salt and other flavoring.

Soak the dried legumes in water overnight. Drain, add the water or stock, cook slowly on top of the stove for three hours or in a fireless cooker for four or five hours or until tender. Renew the water as it boils away. Strain and thicken with the fat and flour rubbed together. These soups may be flavored in many ways. Sometimes a potato or onion, a few celery-tops, a sprig of parsley, or a mixture of vegetables is boiled with the beans or peas, or just before serving a few drops of onion-juices, a little celery-salt, or one half of a level teaspoonful of curry-powder is added. Sometimes the water used is that in which ham or other meat has been boiled, but in such cases care must be taken not to have the liquid too fatty.

**Eggs**

Eggs are especially useful food for young children. The chief point to remember in preparing them for children is that they must not be over-cooked or they are likely to cause indigestion, as experience has shown. Every one knows how the heat of cooking hardens the egg, and it is easy to understand why the digestive

juices might have difficulty in penetrating such a hard substance as the white of a hard-boiled egg. Over-cooked yolks are also thought to be hard to digest. However, when eggs are cooked in the shell, the heat reaches the white before it does the yolk, and so there is more danger of the white being over-cooked than of the yolk. The best ways of serving eggs for children are poached, soft-boiled, or coddled, though they may be scrambled for a change, if one is careful not to scorch the fat used or to over-cook the egg.

### Coddled Eggs

Many means have been suggested for cooking eggs in such a way that the yolks will be cooked and the whites will not be over-cooked. One of the most satisfactory is by coddling, which is done as follows: Allowing a cupful of water to each egg, bring the water to the boiling-point, remove it from the fire, put in the eggs, cover the dish closely, and leave the eggs in the water for about seven minutes. There is some uncertainty about this method, for eggs differ in weight, as well as in temperature at the time the cooking begins. On the whole, however, this method can be depended on more than others. Good results can be obtained by pouring hot water over the eggs, if the same dish with the same amount of water is always used, but each cook must have her own rules.

### Food Group No. 2: Bread and Other Cereal Foods

Cereal foods of some sort are used by children virtually all over the world. Bread is the commonest

cereal food in this country, though cereal mushes are also very generally used. Well baked bread and thoroughly cooked breakfast cereals are both good for children and with milk should make up a large part of the diet. These two foods, bread and breakfast cereals, provide almost the same kind of nourishment. Bread may therefore take the place, to a certain extent, of cereal mushes, and cereal mushes may take the place of bread, but neither can take the place of milk, meat, eggs, fruits, and vegetables.

An ordinary slice of bread (three-quarter-inch slice cut from an ordinary loaf) is equal in food-value to about half a cupful of boiled or steamed cereal, and to about a cupful of puffed or flaked cereal. The mother who must feed her child very economically should calculate the cost of each and decide which is cheapest.

The relation of food to the bowels is an important matter. Grains, particularly those containing the outer or branny layers or coats, are laxative; so, too, are such mildly acid fruits as apples, oranges, and grape-fruit. So far, therefore, as the important matter of preventing constipation is concerned, coarse grains and mildly acid fruits serve the same purpose. When fruits are to be obtained in abundance, the kind of cereal served is not of great importance. When they are not, the coarser cereals should be used. In the case of both cereals and fruits, it is possible to overdo. Sometimes the coarser parts, such as bran and skin, do not agree with the child and, under these circumstances, they should be removed from the food before it is served. Some mothers find it necessary to strain oat-meal porridge, for example, and to remove the skin of apples.

**Bread**

The yeast-raised bread given to young children should be at least a day old, or should be toasted, or twice baked. Most hot breads are likely to be swallowed in large pieces and are therefore not desirable. Hot breads that are almost all crust, like thin tea-biscuits or crisp rolls, are least likely to cause trouble.

**Twice-Baked Bread**

Bread cut or torn into small pieces and heated in a very slow oven until thoroughly dried and very delicately browned is good food for children. The warming-oven of a coal-stove is about hot enough for this purpose. In the case of the gas-oven it is often difficult to get the gas low enough without having the door open a little way. The advantage of tearing instead of cutting the bread is that it makes it lighter in texture and easier to eat. The crust can be torn off from all but the ends of the loaf of bread in one piece. This crust should be torn into pieces about two inches wide. The inside of an ordinary loaf of bread will make sixteen pieces of convenient size. Tear first across the loaf and then tear each half into eight pieces. It is usually necessary to make a small cut first in order to start the tearing. It is well to keep the crusts separate, as otherwise they are likely to get too brown. Such bread will need to be reheated before being served unless it is kept in a warm place, like a warming-oven.

The above is also a good way to use stale bread. Some people crush it and use it with milk as a breakfast-food.

**Breakfast Cereals**

Cereal mushes and other breakfast cereals are very

common foods. Almost all of the well known grains are used for this purpose, and there are many such products, owing to differences in manufacture.

Except when used for dessert, cereal mushes should be served with milk and with very little if any sugar. If the cereals are heavily sweetened, the children are likely to eat so much that they neglect other and much needed foods. If carefully salted, mushes are more likely to satisfy the taste without sugar than otherwise. If preferred, dried fruit, like dates and raisins, may be cooked with the cereal to sweeten it and to give it flavor.

### Cooking Cereal Breakfast-Foods

It is hard to give general rules for cooking cereals, for there are so many kinds; but it is safe to say that that there is no danger of over-cooking and much danger of under-cooking them. Some grains need longer cooking than others; corn-meal, for example, needs at least three hours, and rice hardly more than an hour. In general, whole grains, like whole wheat, or grains more or less finely broken, like cracked wheat, require longer cooking (four hours at least) than more finely ground grains, such as farina (which should be cooked three hours at least). Breakfast-foods made from grains with the outer coverings left on require more cooking than those with the outer covering removed—whole barley, for example, more than pearl barley. Many cereal foods, particularly the rolled and flaked types, have been partially cooked at the factory. These require less cooking in the home than those that have had no such treatment; but if they are to be served to children such cereals should be cooked at home for at least three hours.

Oat-meal, corn-meal, and many other granular cereals

can be put into boiling water and cooked satisfactorily in a double boiler without stirring, the method being particularly good in the case of corn-meal, which is likely to be lumpy if stirred into hot water. A convenient method for cooking cereals is to mix them with the usual quantity of water, bring to the boiling-point, boil for three or four minutes, and then put into a fireless cooker and leave ten or twelve hours. Porridge or mush done in this way must be reheated before serving.

The quantity of water required differs with the cereal. A cupful of rolled oats requires at least two cupfuls of water; oat-meal or corn-meal, two and one half cupfuls; and rice, three cupfuls.

One level teaspoon of salt to a cupful of cereal will usually be right, but it is well to experiment a little with an unfamiliar cereal, since failure to salt mushes properly very often leads children to dislike them.

### Food Group No. 3: Butter, Cream, Table-Oil, and Other Fatty Foods

Fat is an important part of the food for children. This is not surprising as it is found in considerable amounts in human milk, the natural food for babies. Butter, which consists chiefly of the separated milk fat, and cream, which is rich in milk fat and also in the other nourishing substances of milk, are both wholesome. Salad-oils of various kinds (olive, cotton-seed, peanut, and others) may be given to children in small amounts. Those who are not used to table-oil must often be trained to like it. This can usually be done by introducing it gradually into the diet. A good way to serve it is on spinach and other greens or on tender salad vegetables.

There is more than one ounce of fat (at least two and

one half level tablespoonfuls) in one quart of whole milk. If the healthy child is given a quart of milk and has butter on its bread, and meat or an egg once a day, he gets enough fat, and he receives it in a wholesome form. It is well, therefore, not to serve such fatty foods as pastry, fried meats and vegetables, and doughnuts or rich cakes, for in these the fats are not in so good a form for children, as experience has shown.

Bacon or salt pork, cut very thin and carefully cooked, may be given occasionally, but thick pieces with much lean are not desirable. In preparing bacon or salt pork it is very important not to burn the fat. To avoid this they should be cooked in one of the following ways: Put the slices on a broiler or wire frame over a pan; place the pan in a hot oven, and cook long enough to remove most of the fat. Or keep a pan on purpose for cooking bacon on top of the stove and let the fat which fries out of it collect in the pan, taking care that none is burned. In time so much of it will collect that bacon can be dropped into this hot fat, and it will be less likely to burn than if placed on a hot pan.

### Food Group No. 4: Vegetables and Fruits

Two very valuable kinds of food may be grouped together; namely, vegetables and fruit. This is done because they are similar in that both kinds supply iron, lime, and other mineral matter to the body, and also mild acids (not always in such amounts that one can taste them), such as those which are found in oranges, apples, and tomatoes.

Vegetables are an important but often a neglected part of a child's diet. They should be served at least once a day, as they help to keep the bowels in good con-

dition. Several of the ways of accustoming the child to the taste of unfamiliar vegetables have already been suggested here. They may be used for flavoring for soups and stews and may be added to milk or meat stews or served with meat gravy. If gravy is used, it should not be too fat nor made with scorched fat.

All vegetables, whether served raw or cooked, should be washed with great care. Large vegetables like potatoes and carrots should be scrubbed with a brush. Greens should be washed, leaf by leaf, under running water, or in a large amount of water. In the water any sand that clings to them is likely to sink. To prevent it from again getting on the vegetables, lift them from the water, instead of pouring the water off.

Most vegetables when served as a separate dish should be either steamed, boiled, baked, or stewed. If the supply of fresh vegetables is not generous, the juice in which they are cooked should be used with them as far as possible and put into soups or stews.

Experience has shown that vegetables, particularly green vegetables, are at their best when cooked until tender, but not until completely wilted. Spinach requires cooking from twenty to thirty minutes in a steamer.

Vegetables should be served either quite simply or with a little milk or butter to improve or vary the flavor. As has been said before, oil may be served with greens instead of butter. These simple methods are better than complicated ones like frying or scalloping. For the smaller children such vegetables and greens should be finely chopped, and if the tougher portions of other vegetables, as the skins of green peas, for example, are found to disagree with a child, these portions should be re-

moved by putting the cooked vegetable through a sieve. No such vegetables as raw radishes or cucumbers, which might be easily swallowed in large pieces, should be given to small children.

Fruits, which with vegetables make up Group 4, are also very important in the child's diet. They supply mild acids, and they are important for their flavor, for their laxative effects, and no doubt for other reasons, also. This laxative effect is well recognized in the very general use of orange-juice, prunes, and apples. Then, too, the fruits, like vegetables, have mineral elements which the body requires.

Fruits should be served in some form at least once a day. In general, in deciding in what form they should be served, the same rule should be followed as for vegetables. Fruit-juices and the pulp of cooked fruit, baked apple and pears, and stewed prunes, for example, are safest. Whether the skins should be given depends partly on the age and health of the child, and partly on the way the fruit is prepared. If the skins are very tender, they are not likely to cause trouble, except with very young children. When apples and pears are baked, the skins can be made tender by frequent basting.

## CHAPTER XIX

### DIET DURING ILLNESS

The digestive capacity of every child is always diminished during illness, depending to a great extent upon the age of the child and the severity of the disease. The younger the child the greater the incapacity. This is fairly constant with all the ailments of childhood, including, of course, those which directly affect the gastro-intestinal tract. In a moderately severe bronchitis, with a degree or two of fever, the digestive capacity is slightly diminished and a 25 per cent reduction in the strength of the food will answer. During the critical stages of a lobar pneumonia the digestive power is very greatly reduced, and if a considerable reduction is not made in the food a digestive disturbance is very likely to arise that will militate against the patient's recovery. With bottle-fed infants, during an attack of measles, scarlet fever, broncho-pneumonia, or diphtheria, it is wise at the height of the disease to reduce the strength of the food one half by the addition of water to make up for the quantity removed. For ailments of lesser severity, such as bronchitis with a temperature of 100 to 101 degrees or chicken-pox or mild measles, one should reduce the food from one fourth to one third. In any mild ailment or injury that confines a child to its bed, the food strength should be cut down for inactivity as well, since disease lessens the digestive capacity.

Among nurslings and bottle-fed infants these precautions are particularly necessary. A child with fever is likely to be thirsty and to take more food than in health. This is frequently the case in summer diarrhœa. In order to avoid the taking of too much food, the milk should be diluted for the bottle-fed, and the mothers of breast-fed infants should give them an ounce or two of boiled water before each nursing and more than this if possible between the nursings, and then allow the child to nurse only one half or two thirds the usual time. For the bottle-fed, one half to two thirds of the contents of each bottle is removed and the quantity replaced by boiled water, so that the amount of fluid given remains the same.

If the child is a "runabout" over two years of age, he is given broths and thin gruels—one milk and one-half gruels. By carefully watching the stools, thus fitting the food to the child's capacity, we shall avoid grave intestinal complications which, during the summer, often prove to be more serious than the original ailment.

### Art of Feeding in Illness

Not only is food oftentimes taken in insufficient quantity in illness, but in many cases it is absolutely refused. In other cases, during coma and asthenic states, swallowing is impossible.

Forcing the child to take nourishment by the mouth is rarely necessary; coaxing and bribing ordinarily succeed far better. For a child three to five years of age a bright new penny possesses much persuasive power. The child will usually take its food better from those to whom it is accustomed, like the mother or nurse-maid. The trained nurse should understand that while she is un-

acquainted with the patient, the simpler requirements of the child are to be looked after by others to whom the patient is accustomed. The nourishment should be as palatable as possible and served in bowls, cups, or plates that are attractive to the patient because of color, pictures, or peculiarities of shape. Junket flavored with vanilla served cold is a favorite food for sick children of the "runabout" age. Frozen custard and home-made ice-cream, made with one third cream and two thirds milk, will usually be taken well. Toast, dry bread, and crackers made in peculiar shapes are attractive to the child. In not a few cases I have succeeded in satisfactorily feeding children two or three years old, when several other schemes had failed, by allowing the temporary return to the bottle from which they had been weaned for a year or so.

In these difficult feeding cases the child's peculiarities and wishes must be studied. Children in illness require water. Oftentimes they will take it in insufficient quantities. Those who refuse plain water will often take soda or vichy water or, better still, diluted lemonade or orangeade. In the event that these drinks are taken well, they may be given freely. In the acute infectious diseases, which include pneumonia, free water drinking is a therapeutic measure of no mean value.

## CHAPTER XX

### TRAVELLING WITH A BABY[1]

In the first place, don't!

If the whole family has to move, or if the baby is being moved from the city for the summer, well and good. But to move the baby for the mother's convenience, or for any other reason that does not put the baby first, is risky and usually wrong. The change of food, the change of habits, the chances of contagion in travelling, all these are real dangers. Don't run them, unless you have to.

But, if the baby must be moved, move him well. Make all your preparations carefully and in a leisurely way. The baby is, often, on the morning of departure, as tired by all the bustle of a disarranged household as by the trip itself.

#### Food

The food should be planned ahead. If there is milk to be ordered, order it long enough ahead to receive a written statement that a quart of certified milk (if possible) will be delivered on the day of your arrival. It is better to travel with a supply sufficient for at least twelve hours after arrival. Milk for a journey of more

[1] From "The Baby's First Two Years," by Richard M. Smith and Mrs. Henry Copley Greene, with permission of the author and of the publishers, Houghton Mifflin Company.

than one day is a serious problem. If you can, buy the milk modified, put it in separate feeding bottles, and sterilized, before you start. Such milk, properly iced, should be sweet at the end of ten days, but it is safe to carry with you some good brand (such as St. Charles or Peerless) unsweetened condensed milk or powdered milk. This is better when well prepared than boiled "steamer milk" or "station milk," except on those steamers where cows are carried. The daily milk from these cows, boiled for five minutes, may be used if the home-packed milk fail you.

When employing unsweetened condensed milk remember that it is twice as strong as fresh cow's milk, and, therefore, make the food up accordingly. Remember, also, that it will not keep much longer than fresh milk, once the can is opened. When it is given over any extended period of time, give orange-juice each day to add the fresh element to the baby's diet. Condensed milk is not a good diet for a baby, and I would not put myself on record as endorsing it, but there are occasions when it is useful, and this is one of them.

Ice can usually be supplied on steamers and parlor-cars. It can also be bought in station restaurants. Keep the milk doubly well iced on a long journey. The dangers of a mistake in icing are far more serious when the milk is not so fresh, and especially when a week's supply is at stake. A thermometer kept upside down in the ice-chest, so that you will know the temperature of the top milk bottles, always warmer than the bottom, is a necessity.

Do not travel with a painted tin ice-chest. These are always wasteful of ice. Buy a wooden or wicker one zinc-lined. Most department-stores carry these. Both

the baby's milk and cereal (iced and previously cooked) can be accommodated in one of these. Besides the ice-chest, which should include a bottle of boiled water for the first day's use, there should be a "food box" or bag containing all the accessories for the baby's meals. There should also be a toilet-bag, with clothes and accessories for use on the train, and, for a long trip with an older baby, either a small chamber or a wicker toilet-chair.

### Heating of Foods

A baby's bottle may be warmed on the train without much trouble by setting it in a quart dipper and pouring a thermos bottle full of hot water in around it, care, of course, being taken not to crack the iced milk-bottle. If cereal has to be given on the train, carry it in a tall jelly-glass and warm in the same way; this will not really heat iced cereal, but will take off the chill, and that is usually all that is needed.

The nipples may be carried in a small wide-mouthed bottle with a cork. Take two nipples. If one breaks on the train, you cannot hunt in the medicine chest for another. Each nipple can be washed after using in the hot water from the bottle-warming receptacle. On a long journey it will often be necessary to use an alcohol lamp to heat the baby's food. Boxes of "solid alcohol" are better than a lamp full of fluid alcohol. A metal tray (very light aluminium trays can be bought) should be placed under any lamp used on a train.

A baby can sometimes be carried in a clothes-basket small enough to go into carriage, train, or motor, from one end of the journey to another.

If you are travelling for several days, institute as

regular a routine as possible and stick to it. Do not even on a long trip hand the baby round to every one who wants him. Carry along a few favorite, fairly cleansable toys, and do not poke new sights and shapes at a nervous, excited baby every few seconds in the hope of making him less nervous.

Travelling with an infant or with a large family of children, dolls, dogs, and squirrels is often a nervous business. Well planned and successfully carried out, it can be a lively form of sport.

## CHAPTER XXI

### SLEEP, REST, EXERCISE, AND PLAY IN OLDER CHILDREN [1]

### Amount of Sleep

The very young baby's life is a succession of alternate periods of eating and sleeping. He stays awake long enough to eat, then immediately goes off to sleep until he is hungry again. As the child grows, the waking periods are prolonged, but at all stages the child has far greater need for sleep than the adult. Up to six years of age the child should sleep not less than twelve hours out of the twenty-four, ten to twelve hours at night and often one or two in the afternoon. The nap should be taken until the child can no longer be induced to go to sleep in the daytime. It is a wise precaution to have all growing children rest for a while in the afternoon, even if they do not sleep. Plenty of sleep is of special importance in this day when so many parents are nervous and high-strung. Children of such parents, or those who are inclined to delicacy or any form of illness, are particularly in need of large amounts of sleep in order to give the body even more than ordinary opportunity to build up its weakened tissues and to increase its resistance. Sleep should begin early in the evening and should continue until the child wakes naturally. To require chil-

[1] For a great deal of the material in this chapter the author is indebted to Bulletin No. 30, U. S. Dept. Labor.

dren to wake and be ready for an early breakfast, regardless of their desire to sleep, is no longer held to be sound physiologically or otherwise.

### Conditions for Good Sleep

Healthy sleep depends upon many conditions. The bed must be comfortable and clean, and the room should be abundantly supplied with fresh air. The temperature should not be above 60 degrees and may be much lower. The room should be darkened, but not oppressively so. Many children and not a few adults sleep much better if there is a faint light, such as may come from the moon, but no artificial light should be allowed to burn in the room all night. The body should be clean, the nightgown loose and comfortable, and the child should have had a light but sufficient evening meal. The complete evacuation of the bowels every day is of great importance to good sleep, as are also clean nose and throat passages. A child should sleep in a bed by himself, and whenever possible in a room apart from the adult members of the family. Out-of-door sleeping is often a great source of health to children, and a little ingenuity will make this possible at slight expense. If there are no sleeping-porches, it is often easy to attach or extend them to roofs of one-story addition which are accessible to the second-story windows of the main part of the house.

### Sleeping-Bags

It is so difficult to keep a child covered, especially in cold weather, that many mothers have adopted sleeping-bags for their children. These bags are most easily made by folding a small blanket in the middle and sewing up one end and the other side. At the top there should be

strong hooks and eyes or snaps at intervals of a few inches. The child is put into the bag and the hooks fastened so as to hold the top of the bag around the neck and over the shoulders. If desired, it may be left open the rest of the way so that the child may get his arms out, or it may be hooked all the way. One way to prevent thumb-sucking is to fasten the bag so that the child cannot get his hands to his mouth. The bag may be made of any material. An all-wool blanket is best in winter, but muslin will answer for summer. It should always be sufficiently roomy so that the child can turn and move freely about inside. An added device is to fasten tapes to each of the lower corners of the bag and tie them to the corners of the bed or crib. When the child is thus fastened loosely within the bed, the ordinary bed-covers may be drawn over him without fear that he will kick them off or carry them off with himself as he turns. One great advantage of the sleeping-bag is that the mother need not be disturbed at night to see whether the child is covered.

A child should always be completely undressed when he goes to bed, and none of the day-clothes should be worn at night. If it is so cold that it is necessary for the child to wear a shirt at night, a change should be made from the one he has been wearing. Day-clothing should always be thoroughly aired and dried at night, ready to put on again the next day. Likewise, all night-clothing should be well aired out of doors during the day.

### Play and Exercise

From the first aimless flutter of the tiny red fist, through all the constant and varied activities of childhood, the child is slowly gaining a mastery over his

body by exercising it. The healthy child is in practically continuous motion during all his waking hours. He crosses and recrosses the floor many times a day. He climbs, reaches, stretches, runs, lifts and carries small burdens, and quite without knowledge on his own part his muscles and bones are strengthened and developed and his growth is carried forward as Nature intended.

Normal children who have room to play both indoors and out and are provided with suitable playthings will get all the exercise they need; but a child whose freedom is necessarily limited by crowded living conditions in these very early years suffers for want of wholesome natural exercise and should be taken to the parks or the open country as often as possible, where he may run and romp to his heart's content and to the great advantage of his body. Play is a fundamental instinct, and even in the midst of the bleakest and most dispiriting surroundings the child, if left to himself, will find some form of play. Parents do not always realize that a child must play and that through play he is laying the foundation for a healthy adult life.

In not a few homes young children are given tasks too heavy for their strength, are kept at them too long at a time, and are made to carry responsibilities which should not be laid on them at so early an age. This does not mean, however, that children should do no work. Part of a child's education is to learn to take his part in the family life by doing his small tasks and rendering the small services which are quite within his powers, such as setting the table, wiping the dishes, running small errands about the house, picking up his own playthings, answering the door-bell, and other similar duties. Such work, graded to suit the child's age, is a pleasure, if

undertaken in a spirit of play. Beyond this the young child's waking hours, save such as are necessary for eating and the care of the body, should be spent in natural and healthy play to the greatest possible extent.

### Out-of-Door Play

It is surprising to find how many parents fail to provide playthings or occupations which interest the children and keep them safe and happy even away from their elders. To provide children with the material for happy and health-giving play requires no large outlay either of money or time, but it is often necessary to urge mothers to open the doors, both literally and figuratively, to the children.

For the younger children sand-piles, safe swings, small gardening operations, playing in the snow, climbing, and running after a ball will afford much good exercise. As a child grows a little older, swings, teeters, and many of the amusements offered on the public playgrounds are suitable. The simplest home-made apparatus is often more satisfactory than the most expensive because of the child's added joy of watching the construction and assisting in it.

For children under six there is probably no other one thing that gives more pleasure than a sand-box. This requires only a load of clean "sharp" sand such as builders use in making mortar, but almost any kind will do, walled in with clean boards to save it from being washed away by the rain. Sand-boxes may be built and used on porches or roofs. A sand-box in the yard may be sheltered by a hedge or a clump of shrubbery from the sun or the street and is better built on a slight slope in order that there may be a natural drainage. If the

soil beneath is clay, a drain made at the bottom of the slope by filling a hole two feet deep with broken stone will carry off the rain-water. Sand-boxes should be so located as to have the sunshine on them some parts of the day. It is difficult to keep such a box sweet and clean if the sand is mixed with soil or clay, but pure sand washed by the rain and dried by the sunshine is naturally disinfected. All the playthings needed for the sand-box are some old spoons and a few small pails or tins. Baking-powder cans with covers answer very well. Flowers and twigs, clothes-pins, shells, stones, and acorns all enter into the making of sand-box gardens or villages, and most children will play contentedly for hours at a time in a sand-box.

A swing so low that a young child will not be injured by falling out, a teeter-board made by balancing a plank over a saw-horse, and a low ladder, with smooth rungs, fastened securely against some wall, are all excellent forms of play apparatus for the yard or porch.

Playing house, both in and out of doors, is a never failing delight especially to little girls. A large wooden box under a tree or in some sheltered spot is the basis for an astonishingly large establishment, to be furnished and decorated outside and in, and with grounds and gardens about it. Any kind of play that is to have any permanent charm for a child must be one in which he can realize his own ideals and work out the plans of his imagination, and, although the result may look very small or crude to the matter-of-fact adult, it is perfectly satisfactory to the creator of it.

In the north, where the winter temperature is at times considerably below freezing, the out-of-door life of young children is necessarily limited to short periods, but, ex-

cept when the wind is very high or when the cold is excessive, there are not many days when a child, if warmly clad, can not go out for a few moments. In the milder months and warmer climates only extraordinary winter conditions should be allowed to keep him under cover all day long. Children take delight in a mild snow-storm and also playing through a summer rain, if there is no thunder and lightning. Rubber boots, rain-coats, and storm-hats make this sort of play feasible.

Since playing in water may be attended by danger, it is a privilege seldom granted; but where there is a clean, shallow bit of water, preferably a running brook, where children may build dams and dikes, with towns and villages on either side, perhaps connected by bridges, they are provided with a never ending delight. Needless to say, they should be clothed in such a way that they need not think about keeping anything clean or dry, but may enjoy the play to the full.

### Swimming

Swimming is an invaluable exercise, strengthening every part of the body, and whenever possible a child should be taught to swim, beginning as early as the fifth or sixth year. It should be undertaken very gradually, allowing the child frequent intervals of rest and permitting him to remain in the water only a short time at first, using great care to see that he is never frightened, even for a moment, and taking him out for a quick and thorough rub-down at the first sign of chilliness.

### Skating

When the feet and ankles are in normal condition, skating is likewise excellent exercise, if the child does

not become over-tired and overheated or carry the sport to great excess.

### Bicycling

Bicycling is a favorite sport and an excellent exercise. A flat, level saddle should be used, so adjusted that when the child sits in it with his legs extended the ball of the foot touches the pedal when it is at its lowest point. Bicycling is a good exercise, but a child needs to be restrained from riding too fast or too long at a time. The handle-bars should be in such a position that the child sits nearly upright, not stooping forward as many young people like to do.

### Dancing

Dancing is one of the best forms of exercise, although it is usually esteemed rather as an accomplishment; but if children dance out of doors or in well ventilated rooms at suitable hours and under careful adult supervision, it becomes an invaluable form of gymnastics.

### Indoor Play

Play material of a sort that best pleases children is at hand in nearly every home. The baby often finds more pleasure in a string of empty spools or a few clothes-pins than in the rattles and balls that have come from an expensive toy-shop. As the child grows, articles and materials at hand, if properly utilized, will give great joy. All sorts of paper may be used for folding and cutting or for scrap-books. Magazines furnish a wealth of pictures to cut out, to paint, or to paste.

Crayons, paints, pencils and paper, and a blackboard will not only afford much pleasure but will help to teach

the child to write and draw in crude fashion at an early age and help to train eye and hand without undue strain and fatigue.

A printing frame and a supply of blue-print paper, on which may be printed the outlines of leaves and flowers, butterflies or other insects, and many natural objects, will afford hours of happy occupation to children old enough to do such work.

Wooden boxes may be used for stores, doll-houses, forts, and the like, while chairs and tables will readily become horses, steamboats, stages, and a thousand other things. Old cotton cloth, torn into two-inch strips and sewed together end to end, will make yards of reins enough to drive the "coach and four" that is so easily created out of the dining-room chairs.

The most successful playthings for a child are those that furnish the material out of which he may construct his own amusements, rather than those that amuse him but give him little to do. It is well known that many of the expensive mechanical toys are discarded after a brief acquaintance or are soon ruined in the attempt to find out what makes them go, because the child wants to do something rather than to be amused or entertained by a performance in which he has little part. Among the mechanical toys, however, railroads and trains of all sorts have a perennial joy for all small boys. With the tracks in sections and the different kinds of cars and engines he is able to construct his own systems according to his own ideas. Lead and tin soldiers that can be marshaled to suit the will of their general are favorites, and also horses, dogs, cats, and other animals, all of which lend themselves readily to many uses. All sorts of toy vehicles (such as wagons, carts, tricycles, and car-

riages), small brooms, carpet-sweepers, and other articles for doll housekeeping are adapted to play in which the imaginative element is most important. Books, drawing, sewing, writing, and building-materials all have their place, and many of these are at hand in every home.

One of the best possible toys is a big box of plain, smooth, wooden blocks. They can seldom be purchased in the stores and must usually be sawed from planed lumber at a mill, by a carpenter, or by an ingenious parent. Mr. H. G. Wells, in his book, "Floor Games," gives the following as the proper sizes for such blocks: whole blocks, 4½ by 2¼ by 1⅛ inches; half-blocks, 2¼ by 2¼ by 1⅛ inches; and quarters made by sawing the latter in two.[1] Almost any wood may be used to make these blocks except that which is likely to split or splinter or that which readily warps. Maple and birch, short-leaf pine and yellow poplar, sugar-pine or western white pine, are all suitable, as is basswood, beech, or sycamore. Blocks of hardwood, like oak, may be passed down from one generation to another. A box or chest to keep them in is almost a necessity. In addition to the blocks—from which no end of things can be constructed—Mr. Wells likes to have some play-boards of the same wood, 18 by 9, 9 by 9, and 9 by 4½ inches. These boards make oceans, islands, counties, platforms, stages, and may serve also as roofs, walls, tents, and targets. There can hardly be too many of the blocks, but a hundred will make a fair start. Thus furnished, a child or a group of children will need only some parental suggestions, a word of encouragement now and then, with possibly some adjudication of disputed questions, to pass many happy hours in constructive play.

[1] Page 19. Small, Maynard & Company.

One of the favorite forms of play for all children is blowing soap-bubbles, and on stormy days this will prove a great resource. Children must never be allowed to put other children's pipes into their own mouths. The following method of preparing the soapy water is excellent:

Put into a pint bottle two ounces of best Castile soap, cut into thin shavings, and fill the bottle with cold water that has been first boiled and then left to cool. Shake well together and allow the bottle to stand until the upper part of the solution is clear. Now decant this clear solution of two parts, adding one part glycerine, and you will have an ideal soap-bubble mixture. With some practice, bubbles measuring eight to ten inches in diameter may be produced, and a stand for them may be provided by soaping the edge of a tumbler. If any old soft material is laid on the floor and the room divided into halves by a shawl or blanket hung across, the children may be arranged in two opposing camps and have a very good match-game, devising their own rules as to size and number of bubbles, whether they shall be kept in the air by fanning, how much it shall count if a bubble falls or strays across the line, etc.

Another favorite game is modeling in some plastic material. Modeling-clay may be bought, but a homely substitute is prepared by mixing one cup of flour and one half of a cup of salt with a little water, making a dough out of which beads and other things may be moulded.

### The Play-room

Too many homes, even those where there is no lack of means for the necessary margin of choice, are furnished without apparent regard for the needs or rights of

children. Often it is hardly possible for a child to find a place to play or to use his own things without having to be continually warned against breaking or harming something. It is plainly unjust to any child to surround him with furnishings designed entirely to accommodate grown-up people and ask him to respect them unless there is somewhere a place in which his rights are supreme and where the grown-ups must pay equal respect to his possessions. For this reason there should always be some room, or at least a corner of the family living-room, where the child may keep his own things and use them in peace.

The ideal rooms for children contain only such furniture as is necessary for comfort and convenience, and this should be simple and easily kept clean. Washable painted walls, bare hardwood or painted floors, simple curtains, and painted furniture are suitable. If wall-paper is used, it should be inexpensive so that it can be frequently renewed. The windows should have opaque shades to shut out the hot sun and should be screened against flies and insects. The chairs, tables, beds, shelves, bookcases, and all the other necessary articles of furniture should be small and low. The continual effort to adapt the strength, size, and skill of children to the furniture of grown persons results in no little irritation, some of which might be easily relieved. A stool or hassock or even a low box on which he may stand will save much trouble. An ordinary kitchen table or common sewing-table with the legs sawed off about half-way will afford untold comfort to the children at their work or play. It should be painted and should rest firmly on the floor. Pine kitchen chairs painted white, with the legs sawed off to the proper height, will serve the purpose. Added to

this there should be some shelves or drawers where work and playthings can be kept within easy reach. Such an equipment as this in a sunny, cheerful room, with plenty of fresh air and warmed in winter to 68 degrees, will provide an amount of happiness to the children quite out of proportion to the cost.

### Children and Entertainments

Children who are provided with the opportunity for natural and wholesome play at home have little need for entertainment outside. The youngest children should be in bed and asleep by 7 P. M., and the older ones soon after, in order to get the amount of sleep they require for health. If taken to the motion-pictures or other place of entertainment in the evening, they not only lose sleep that is not usually made up but are apt to be over excited and tired. The close air, the brilliant lights, the confusion and noise of public entertainments are all bad for children, especially for those that are inclined to be nervous and excitable. In addition, there is considerable chance to exposure to infectious disease in any public gathering.

Children's parties often seem to be given more to gratify the mother's desire to give her children pleasure than because they actually have that result, judging from the comments of the children, both hosts and guests. The attempt to play naturally in dress-clothes which need to be taken care of, the eating of unusual foods at an irregular hour, and the necessity of remembering one's formal manners all contribute to the failure of such a party and to the disappointment of the mother.

On the other hand, it is a most important part of any child's training to learn to practise hospitality naturally

and generously. He should be encouraged to invite his friends to his home, to share his play and his meals, and also to accept this simple and natural form of hospitality from others. This kind of entertainment involves no special dressing, no unusual food or irregular hours, and serves to teach children much that is wholesome for them to learn, including a respect for the rights and opinion of others.

# CHAPTER XXII

## DISCIPLINE AND EDUCATION

### Parent and Child

The relation of parent to children and the position of the children in the home are quite different in the present day from those that prevailed when the saying, "Children should be seen and not heard," expressed the usual attitude of the adult mind. Suppression and repression are largely giving place to encouragement and appreciation in the family training of children. Under the old idea children were regarded as plastic material to be moulded into what shape the parents desired; under the new it is believed that the chief duty of parents, after providing food, shelter, warmth, and clothing for their children, is to understand them and to surround them with loving and sympathetic guidance while their development proceeds as Nature intended. It is from the mother, most especially, that this guidance will come. A recent writer says: [1]

It is of the average mother that I am particularly thinking, the mother who has had an average schooling, who has an average income; and I am thinking, too, of the mother even below this average, who has had little training and education, but who is naturally intelligent and who has just as keen sensibilities and desires and ambitions for her children as those who have had more fortunate opportunities. It

[1] Miriam Finn Scott in "How to Know Your Child," pp. 10, 11.

is to them that I wish to make clear, in the first place, that they, as parents, have in their power, in their hands, either to make or break the lives of their children. It is to them that I want to point out the importance of the first years, the tenderest, the most formative period of the child's life; to show how the commonplaces, what we consider the trivial things, affect him, how these very same commonplaces can be made to serve him and develop him; and how through a new attitude toward the little child the mother can not only vastly improve her child over what he otherwise would be, but by so doing can make the most of herself and of her life, and bring to herself a greater happiness and to society a greater service.

### Parents Must Become as Little Children

To reach this understanding of child life perhaps the first essential is that parents shall "become as little children" themselves; that is, they must be willing to renounce the position of tyrant or dictator for that of "guide, philosopher, and friend."

### Child's Freedom of Expression

Another essential is that the child shall have freedom of expression. Children can not be quite natural while under arbitrary rules or even when they are continually conscious of observation and inspection, however friendly this may be. Therefore the child must be free to exhibit his natural qualities, if the parent is to find out what those are. This does not mean that a child is to be given absolute control over his own actions, to do as he pleases at all times, but that when he is going about his own legitimate business of play or work he shall not be hampered by unnecessary restriction and repression.

**Inborn Traits of Character Recognized**

A third essential is that the parent shall strive to recognize the inborn traits of character which lie back of behaviour. For example the high-spirited, energetic child who is full of eager curiosity in everything about him may exhibit at times fits of ugly temper, even viciousness, if he has not legitimate outlet for his natural inclinations; but high spirits, energy, and curiosity are all invaluable human traits when turned into proper channels, and the mother must try to look back of the violence and ugliness to find out why the fundamental qualities have been twisted into this unfortunate expression. Children are often described by their mothers as wilful, sullen, unmanageable, sly, contrary, ugly, stubborn, or even stupid, without the least recognition of the fact that such manifestations are often only the result of the unhappy perversion of excellent inherent qualities. The sullen, silent child was perhaps unduly sensitive and needed not to be ridiculed but to be gently let out of his morbid shyness into an interest in things outside himself. The capricious, ungrateful, selfish child may be rebelling against having too much done for him. Eye, hand, and brain may be suffering for occupation. The stupid child may be stupid only because the things which interest others do not interest him, and in some moment when he is off his guard the other may catch a glimpse of him absorbed with interest in an undreamed-of field. To develop and expand this interest until he is no longer stupid or dull but may even go beyond his fellows is often comparatively easy.

It therefore follows that to cope successfully with the problems of childhood parents must be able to recognize

their own mistakes and to change their methods, if necessary, to fit the case.

**Obedience**

The young child should know no other way than to do what he is told. A lawless, ungovernable child, who respects neither the rights of others nor the authority of his elders, who rides roughshod over every one about, who eats without regard to time or place, who gets his own way by crying or by stubborn insistence, is a nuisance to every one concerned, and at the same time he is doing himself irremediable harm. Discipline begins in infancy, and throughout the whole period of childhood constant discipline—which is guidance, not punishment—should surround the child, protecting him from the formation of bad habits and teaching him fundamental lessons of self-denial and self-control.

Every child should be able to respect the authority of his parents and to look up to them as the fountainheads of wisdom and help, whose counsel he follows because he knows his father and mother are his best friends and not because he is compelled to do so through fear. But, as a recent writer has said: [1]

> The ideal freedom behind the best methods of child training means freedom from unnecessary suppression, from thoughtless, unreasonable, unjust, unsympathetic guidance; it means freedom from blind, arbitrary direction; it means freedom to grow, to develop naturally and normally under constant, consistent and thoughtful direction.

The lack of regard for the reasonableness of children's wishes and the arbitrary and unreasoning suppression of

[1] Miriam Finn Scott, "How to Know Your Child," p. 108.

them are among the common causes of bad behaviour in children. Enforced and rigid obedience to the commands of the parent, arbitrarily given to-day and perhaps neglected to-morrow according to the mood or caprice of the mother or father, is almost certain to lead either to outright disobedience or to deceitfulness. Obedience viewed merely as an abstract virtue is not necessarily virtuous. In fact, it is often quite the opposite both in the resultant behaviour of the child and in its effect upon his character. Some of the most obedient children have the least moral responsibility and are easily led into wrong-doing by others, because the habit of unquestioning and unreasoning acceptance of superior authority has been so thoroughly fixed in them in childhood that as they grow they have little independence of judgment or will-power left to direct their own affairs. Parents have no right to exact from their children instant obedience save when the line of conduct insisted upon will either serve to protect the child from physical or mental harm, to develop his own character, will, mind, or judgment, and thus insure his ultimate welfare and happiness, or to protect the rights of others. A weary mother harassed beyond endurance easily falls into the habit of "nagging." It is very common to hear a young, nervous mother saying "don't" to the child so many times a day that to obey would be physically impossible, unless the child were asleep. It is almost inevitable that the child in such a case will learn little or nothing of true obedience.

**Punishment**

As long as rigid obedience is exacted there must be a penalty for disobedience. This penalty is often quite as arbitrary and meaningless as the command and, like

it, may be given as the result of momentary feeling in the parent.

Harsh punishment inflicted in anger relieves the parent's overcharged mind, but in most cases it serves no other useful purpose and, in the last analysis, often does irremediable harm. Spanking and whipping are the easiest forms of punishment and the least intelligent. The parent, angered by something the child has or has not done, vents his own fury in this way. There is little logic in such a punishment, and less justice. The chastisement is not measured to fit the scale of the offense; its severity depends largely upon the physical strength of the parent and the degree to which he is incensed. The animal rage which it creates in the parent weakens his self-respect, and the majority of parents are heartily ashamed of themselves after such a scene with a child. It is not conducive to comfort to know that simply because one is larger and stronger one has permitted oneself to inflict brute force upon a child. But the effect of corporal punishment is even more to be deplored for its effect upon the child. Leaving out of account the possible case in which lasting physical injury is inflicted, it will still be true that in most cases the child's rebellion against being overcome and made to yield to the superior strength of another engenders in him physical fear, anger, and hatred. In either case, the punishment has not only failed to accomplish its only legitimate objects, namely, to make the child sorry for what he has done and to give him a desire to do better, but has permanently weakened the relation that ought to exist between parent and child.

The best preventive of mischief is to provide the child with plenty of legitimate occupations, interest, and amuse-

ments. Idleness is the bane of childhood. Every normal child must have work for hand, eyes, and brain, and if proper activities are not provided he will be sure to find others for himself. It must also be remembered that much of what critical adults term "mischief" is not such at all from the child's standpoint, but is merely the result of a perfectly normal instinct on his part that leads him to seek something to do. Parents should try to discriminate between deliberately bad behaviour and that which is quite innocent of such intention, however annoying it may be in its results.

Much of a child's earliest education—often the most valuable and enduring part—is that which is unconsciously acquired at home, not by precept or teaching, but by imitation. From beginning of life the child is copying the sights and sounds about him. Thus he learns to speak his first words, and from that time on through his entire childhood he unconsciously imitates the language, manners, and emotions of the older people about him. He repeats the tricks of speech and manner that they constantly employ. If a child lives among people whose language is correct and agreeable, whose manners are pleasant, who show always a thoughtful consideration for others, and whose behaviour is gentle and kindly, the child unconsciously acquires similar ways. On the other hand, if a child grows up among people who are scolding, faultfinding, complaining, or quarrelsome, something of such tendencies will almost surely persist, however much he may learn to abhor these qualities in later life; and such lessons in conduct and manners are probably never fully eradicated. Good manners are an invaluable asset to every person. Their root and foundation lie in unselfishness and consideration for the rights

of others; and only the constant daily exercise of these qualities will give the children that charm of manner which is a delight in persons of every age.

A normal child is full of curiosity about everything in the world, and through his questions the parent has boundless opportunity to lay the foundations of a broad and practical education, if the child's questions, even in babyhood, are met with respect and answered with truth. However trivial or stupid the questions may seem to the busy or impatient adult, they are all-important to the child, and if he cannot count on sympathy and attention from his own family he will have missed something which can never be made up to him. It is not necessary that all questions should be answered at once, nor fully. If the mother is busy or tired, she can ask the child to come to her at another time when she has time to talk to him. Here, as in every other aspect of child care, through the new vision of parenthood in which the parents are the companions and friends of their children, it is impossible to treat the child's questions with rudeness, ridicule, or untruthfulness. A child is quick to detect deceit. When dishonest or fanciful replies are frequently given him, there may grow up in his mind a disrespect for the opinions of his parents and a suspicion of their motives that will be fatal to the establishment of complete harmony at a later stage of life.

### Sex Education

Parents should be the child's first teachers in the field of sex education as in all other fields. When the child begins to ask questions he should be given simple, honest, dignified, and sufficient answers. Even more depends upon the manner and behaviour of the mother and father

than upon the actual information given. If the child sees that his mother is interested, that she treats his inquiries with respect and answers them gladly, the foundation is laid for a cleanliness of mind that should persist and safeguard the child throughout life. One who is put off with subterfuge or with palpable evasion, or more especially one who is summarily silenced, may not return again with his question but will probably later find a readier informant in some sophisticated companion of the street, school, or kitchen. If these natural questions are disregarded or evaded, the child is quick to color his own concepts in the same way. He soon discovers that there are certain subjects which grown-up persons will not talk with him about; his curiosity is stirred; and he will not rest until he has found some sort of an answer to his questions. The tragedy of this building of reserve between child and parent appears not so much in these early years as five or ten years later, when the protection and guidance of parents through the critical years of adolescence are so sorely needed but may be neither sought nor offered.

The child's first questions are almost sure to be as to where babies come from, and all mothers can answer this question honestly and directly by saying that the baby came from mother. Then if he pursues the subject he should be told that babies of all kinds, such as colts, lambs, kittens, rabbits, or puppies (using whatever illustration is most familiar to the child), as well as human babies, must have a warm, quiet place to stay while they are very little; and so the mother keeps the baby in a nice little home, or nest, or room, under her heart, where no harm can come to him until he is strong enough to live outside. If a new baby is expected in the family or in a

neighbouring family, this will afford the best sort of an opportunity to tell the child what a mother is and how careful they must be of her while the new baby is growing.

In the first period when the child's awakening curiosity embraces every fact that comes under his observation and when it is easiest to guide him into a clean and healthy view of all physical manifestations of life, it is important to begin to instil habits of personal cleanliness. Incidental to the bath, the mother may mention that the sex-organs must not be handled except to wash them, adding, if necessary, that boys and girls who play with their sex-organs may not grow up as strong and healthy as they should. Such hygienic advice should be given plainly and simply, without unnecessary stress and without opening the way for argument or discussion, and especially without rousing the child's curiosity and leaving him unsatisfied.

To avoid embarrassing situations the mother should make it plain from the first that it is not good manners to talk about these things with any one except mother or father, explaining that other people will not be as much interested nor as well able to tell him what he wants to know; also that it is better to ask questions when one is alone with father or mother, rather than at the table or when other people are about.

# CHAPTER XXIII

## HABITS OF INFANTS AND CHILDREN

### A Little Machine

Babies acquire habits most easily and at a very early age. Whether the habits are good or bad depends more upon the child's attendants than upon the child itself. If properly trained, and the training must begin at birth, a baby will acquire the habit of taking his food at regular intervals by day and by night, and he will also acquire the habit of going to sleep and waking at regular intervals. As a result of a careful régime regarding feeding, sleep, bathing, and airing, and the performance of its various functions at stated times every day, the baby will soon develop into a "little machine," as one mother called her babe. Such a child causes no trouble and thrives far better than one who is fed every time he cries, day or night. A baby that requires constant entertaining when awake, and that sleeps only when exhausted, usually has another bad habit, that of being held constantly in arms. A baby should be handled very little, just enough to give it exercise. It will learn to amuse itself at a very early age if given an opportunity.

### The Pacifier

The pacifier habit—the habit of sucking a rubber nipple—is an inexcusable piece of folly for which the mother or nurse is directly responsible. The habit when

formed is most difficult to give up. The use of the pacifier, thumb-sucking, finger-sucking, etc., make thick boggy lips on account of the exercise to which the parts are subjected. They cause an outward bulging of the jaws that is not conducive to personal attractiveness. Nature has not been so lavish of her gifts to the great majority of mankind that they can afford to trifle with her handiwork. Furthermore, the pacifier is often a menace to health. If there are two or three young children in the family, the pacifier is frequently passed around without other means of cleansing than being drawn a couple of times across the nurse's sleeve. This novel method of disinfecting the pacifier may be seen in actual use on the street any pleasant day, and one often sees the mother or nurse moisten the pacifier with her own lips before giving it to the child. One frequently sees young children fight for the pacifier, one taking it from the mouth of another. It may readily be conceived what a boundless source of harm this little instrument may be, when every source of disease known to childhood may be transferred by it. Thus it may act as a means of transmitting tuberculosis, syphilis, diphtheria, and many other ailments of minor importance.

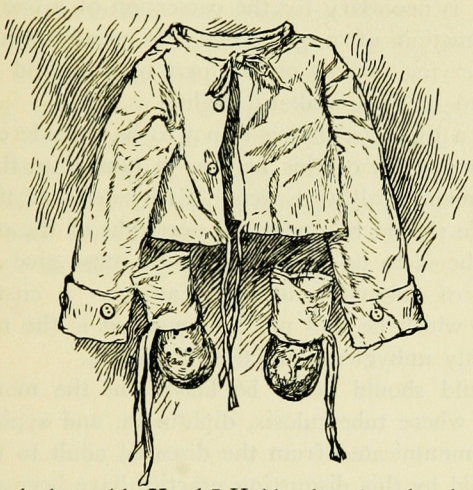
Adenoids are often the result of thumb-sucking or the use of the pacifier. The pressure exerted in sucking forces the soft palate against the posterior pharyngeal wall; this irritates and stimulates the glands of the part, which in time enlarge, and adenoids develop.

To break the child of the pacifier habit, burn the pacifier and do not buy another as is sometimes done. For thumb-sucking and finger-sucking bandage the hands and moisten occasionally with a solution of quinine. The

Hand-I-Hold Mitt is a useful means of breaking the habit.

**Ear-Pulling**

A few children develop the ear-pulling habit. It is always one ear that receives attention. Sometimes it is



Straight jacket with Hand-I-Hold mitts for thumb-sucking

the lobe and sometimes the upper portion. The child pulls on the ear the greater portion of its waking hours. As a result of this practice one sees ears drawn entirely out of shape. Bandaging the hands so that the fingers cannot be used to grasp the ear is the best means of breaking the habit. The Hand-I-Hold Mitt may also be used with advantage.

Occasionally children are met with who have a mania for placing foreign bodies in the nose and ear. Shoe-

buttons are the favorites, although beans, pieces of coal pebbles, and various kinds of buttons serve the purpose when shoe-buttons are scarce. The habit is best controlled by a vigorous spanking after each offence.

The formation of habits and their correction rest largely with the mother or attendant. Considerable stability is necessary for the correction of a bad habit or the formation of a good one. It means several prolonged crying attacks on the part of the child and perhaps two or three wakeful nights.

Such a topic as kissing is not to be considered out of place in a work of this nature, in taking up the child's management in all its aspects. Every detail of the child's daily life should be under the oversight of the physician, and if he is to do his full duty he must give a certain amount of voluntary, unsought advice. A custom concerning which he will not be consulted is the matter of the highly unhygienic practice of kissing.

A child should never be kissed on the mouth. Instances where tuberculosis, diphtheria, and syphilis have been communicated from the diseased adult to the innocent child by this disgusting practice have been recorded. Neither should the child's hands or fingers be kissed, as the hands and fingers of the majority of babies are in their mouths many times an hour. If baby is the first one that has graced the household and must be kissed, this can be accomplished with the least damage if the kiss is implanted on the head or forehead. The parents must make the rule, and they must set the example by adhering to it themselves.

The fact that an adult is apparently well is no excuse for this indulgence. Healthy adults frequently have in their mouths the germs of tuberculosis, of diphtheria, and

of other diseases, and never suffer from their presence because they are strong and have vigorous mucous membranes that do not furnish so favorable a soil for the growth and development of pathogenic bacteria as do the more delicate mucous membranes of the young. It is criminal, therefore, to subject the child to such dangers. Scarlet fever, measles, and whooping-cough are all most readily transmitted at the beginning of an attack through the close contact required by a kiss.

Kissing should not be allowed among children. Little girls are very prone to follow the custom of their mothers, whether good or bad; hence the necessity of advice in this direction will be impressed upon the parents if they will observe the interchange of bacteria that takes place on the sailing or arriving of our large ocean steamers.

# CHAPTER XXIV

## COMMON DISEASES OF CHILDHOOD

The principal diseases which afflict children under six years of age fall into four general classes; namely, prenatal, gastric and intestinal, respiratory, and infectious.

Many young babies lose their lives or are seriously weakened by the unfavourable conditions surrounding the mother before the baby is born or by lack of proper care at childbirth.

A large number of infant deaths are caused by diarrhœal diseases due very largely to bad feeding. A great many babies' lives might be saved every year solely by the use of proper food and suitable methods of feeding.

The third important cause of death among young children is found in the respiratory diseases such as bronchitis and pneumonia and the fourth in communicable diseases such as measles, whooping-cough, and scarlet fever. In general, the rule is that the younger the child the more serious will be the effect of these diseases.

No more harmful doctrine was ever held by mothers than that all children must have the common infectious diseases and therefore may as well be deliberately exposed to them in order to have them over while young. It will never be known how many lives have been sacrificed to this idea nor how many children have been permanently weakened as a result.

For such reasons it should be the aim of every mother

to prevent every possible hour of illness among her children.

### Dentition

Much has been written about the process of teething. Aside from the contagious diseases, nearly all the ills of childhood have been attributed to this cause. Not only the laity but physicians are often inclined to attribute this or that ailment to teething. Many a diagnostic puzzle has been smothered under the diagnosis of dentition. Observations covering the teething period of several thousand children in institution, out-patient, and private work, among all classes and conditions of children, show that babies' teething may be divided into three groups: the breast-fed, the well managed bottle-fed, and the badly fed.

### The Breast-Fed

In the great majority of cases of breast-fed babies, the teeth appear at the proper time, with little or no disturbance. Perhaps there is a period of irritability and restlessness for a few days before the teeth come through. In many the teeth appear without the slightest inconvenience, and that a tooth has been cut is discovered while washing or dressing the baby. In a very few breast-fed babies there is a distinct irritability and restlessness, with fever and slight diarrhœa, all of which subside when the teeth appear.

### Well Fed Bottle-Infant

The well managed bottle-fed, such as are given cow's milk and water properly prepared and diluted, teethe, as a rule, without inconvenience. Some show a tendency to

slight gastro-intestinal disturbance, which is relieved by diet and simple medication. The cases that occasionally develop severe intestinal disturbances are those which cut the first molars or several other teeth at one time during the hot weather. Such infants must be kept on a very light diet until the teeth are through or until the onset of colder weather.

**Badly-Fed Infant**

The badly fed infants are nearly all bottle-fed. They are given cow's milk improperly prepared or at too frequent intervals. Condensed milk and the proprietary foods are given to many of these infants. To this class belong the great number of infants who are given bread, meat, potato, and sweets before the digestive organs are ready for such food. It is these badly fed, debilitated, rachitic infants who are said to "teethe hard." They teethe late, cut several teeth at one time, and have attacks of convulsions, diarrhea, and vomiting during the teething period. There is no doubt that the alimentary tract is predisposed to troubles of a catarrhal nature during active dentition. If the baby has been properly fed and is in fair health, this tendency is so slight that it probably will not be noticed. If, on the other hand, the digestive tract is weakened from abuse, vomiting and diarrhea will often result. The majority of children who belong to the third group are rachitic, and rickets always mean enfeebled resisting powers. Rachitic children teethe late.

Irritability and restlessness, slight fever and gastro-intestinal derangements, are the only unpleasant effects of dentition in any patients who are in fair health. The irritability, restlessness, and fever appear to be due directly to dentition. Indirectly, teething may be a factor

in gastro-intestinal derangements. The process may be painful: the digestive organs fail to act properly, and trouble follows. Dentition does not cause bronchitis, eczema, or skin eruptions of any kind.

There exists an opinion among the ignorant that bronchitis needs no treatment and that diarrhœa is beneficial during the teething process. These beliefs, equally dangerous, have been the cause of an incalculable amount of harm; as the result, many lives are lost yearly. One sees children die with summer diarrhœa who are brought for treatment when no hope could be given. The mother has been told that diarrhœa was beneficial to the teething child and that if the diarrhœa were stopped the child would be thrown into convulsions.

When the form of a tooth pressing on the gum can be made out and the child is fretful and feverish, the digestive capacity is lessened, as previously mentioned. When such is the case the nourishment should be temporarily reduced one half by the addition of boiled water. If the child is breast-fed, the nursing period should be reduced to five or six minutes and boiled water given to drink between feedings. If a tooth is trying to force its way through a thick, resistant gum, a great deal of pain and discomfort will be spared the child if the tooth is assisted in its progress. This is best accomplished by the use of a clean towel, which is placed over the finger and vigorous friction brought to bear over the sharp edge of the tooth. It is quicker and less painful than lancing, and the gum will not close over the tooth.

### Malnutrition and Marasmus

By malnutrition we understand that condition in which a child for some reason fails to gain in weight or

loses steadily for a considerable period of time. Cases present all degrees of severity, from those in which there is merely a temporary loss of weight to those of an extreme degree of malnutrition, which latter condition we term marasmus. A marasmic infant presents one of the most pitiful pictures we are called to look upon: The dry skin drawn tightly over the fleshless bones, the sunken eyes, the large abdomen, the anxious, tired expression, and the whining cry furnish a picture of starvation so pathetic that only those hardened by long familiarity with such cases can look upon them unmoved.

When the history of such infants has been looked into, it will be learned that errors in feeding contributed largely to bringing them to their woeful condition. Many of these children came into the world strong and vigorous; the mothers were unable to nurse them; and the food selected did not agree with them. Cow's milk, perhaps, was given unsuitably adapted—it is usually given too strong to young infants—at any rate it disagreed, and the proprietary meal foods were brought into use, one after another, as they were suggested by well meaning friends, each to do its share of damage and in turn to be discarded. The stomach bore the ill usage for a time, but soon became so distended that the digestion of rational food was out of the question. Many of these children are in such a desperate condition when they reach the hands of the physician that even the exhibition of breast-milk may not suffice to save their lives.

It is a source of amusement oftentimes to note the assurance with which laymen will advise a mother that such and such a food is the only one for the baby, when they possess neither the intelligence nor the training necessary to judge of the child's digestive peculiarities

or capacity; in fact, they know no more of the child's requirements of the chemical composition of the food suggested, or even what should be the composition of the baby's food, than does the unfortunate babe itself.

If there is inherited weakness, or a low vitality from any cause, the downward course may be very rapid. There are two or three weeks of suffering and then the end. If seen before the vital powers are at too low an ebb, these children, by very careful and intelligent management, can be saved.

### Diarrhea

Diarrhœa, with its complications, is the cause of more deaths among young children in our large cities than any other one factor. So prevalent and so dangerous an illness should be better understood by the laity than is the case at the present time. Every illness of this nature must be considered as a case of poisoning. The vomiting and the diarrhœa are conservative efforts on the part of nature to get rid of the offending material.

### Causes of Diarrhea

The poisoning may result from direct infection. It may be due to bacteria-laden milk, unclean feeding apparatus, or to any means whereby poisonous germs find entrance into the gastro-intestinal tract. It not infrequently happens that diarrhœa occurs in an infant who is getting too much sugar in its food; especially is this true in the warm season of the year.

There may also be an indirect infection or self-poisoning —an auto-intoxication. Heat plays an important part in these cases, also. The child is greatly depressed; the digestive processes are not properly carried on—the milk

is not acted on by digestive juices of the usual strength and volume, and decomposition takes place; poisons are generated and absorbed, producing fever and prostration; the intestine endeavours to empty itself of the offending material, and diarrhea results.

### Cholera Infantum, Etc.

Cholera infantum, inflammation of the bowels, dysentery—all very bad terms but in common use—are due primarily to the causes above mentioned. Such being the nature of summer diarrhœa, the duties of the mother in such cases should be clearly understood.

The intestine must be relieved of as much as possible of the material that is causing the trouble. For this purpose two teaspoonfuls of castor-oil should be given, as well as nourishment that will not furnish a fertile soil for the growth of bacteria. For this reason milk should invariably be stopped; plain boiled water, and lots of it, should be given till the physician arrives.

### Prevention of Diarrhœa

A word regarding the prevention of summer diarrhœa. As infection may be carried to the feeding utensils by the hands of the nurse or mother, she should always wash her hands most carefully with soap and water before handling bottles or nipples or preparing the infant's food. Inasmuch as other children may become infected, or reinfection may take place in the one already ill, a child with summer diarrhœa should be isolated.

### Milk-Supply

If the baby is in the country, a special arrangement

should be made with the farmer whereby he agrees that the cow's belly, udders, and teats should be wiped off with a damp cloth before milking; that the milker's hands shall be washed before milking; that the few jets of the fore-milk shall be thrown away; and that as soon as the milk is drawn it shall be strained through absorbent cotton into a quart bottle suitably corked and placed in a pail of cracked ice. For the extra trouble the farmer receives from twelve to twenty cents extra a quart. For those who have country homes and who can control their milk-supply, the above directions can be carried out to the letter. For city babies certified milk supplied by the city dairy should be used and kept constantly on ice in a covered receptacle.

Do not use Jersey milk; if it has to be used, allow it to stand for six hours, in a quart bottle; then remove six cream-dippers. All milk should be boiled for three minutes.

**Reduction of Food**

During the very hot days in the city, the child's digestive capacity is not equal to that of the colder months. Children who remain in the city are given weaker milk mixtures; a reduction of from 15 to 25 per cent is usually sufficient. The infant may not gain very much in weight, but on a reduced diet he is much more likely to pass through the summer without intestinal disorders, and there is abundant opportunity for him to gain later on.

**Clothing**

The clothing is most important, and careful attention to this point should be given. A napkin, a thin cotton

shirt without sleeves, and a thin muslin slip are all that is required on very hot days.

### Water

Frequent drinks of cooled boiled water should be given between feedings. If the child suffers much from the heat, as shown by prickly heat and restlessness he should be given two or three spongings daily with a cool solution of bicarbonate of soda, one teaspoon to a pint of water.

### Airing

Fresh air is of vital importance. Leave the windows open. Keep the child in the open air when possible. Avoid the sun. Select the shady side of the street and the shade in the parks.

### Vomiting

A sudden attack of vomiting with fever, may usher in any serious illness. Thus it may be the initial symptom of pneumonia, scarlet fever, or meningitis. By far the most usual cause, however, will be found intimately connected with the stomach, usually an acute attack of indigestion. Bottle-fed children must furnish the greatest number of patients, as these children are almost always overfed and not infrequently badly fed. With the onset of a sharp attack of vomiting, particularly if it occurs during the hot weather, the milk diet should immediately be stopped. Small quantities of boiled water and one half to two ounces of barley-water or rice-water or plain broths may be given every hour or two. In the obstinate cases a considerable period of rest should be given the stomach. From twenty-four to

thirty-six hours will often be necessary before the child will be able to retain even a teaspoonful of water. No milk should be given until the vomiting has ceased for at least two days. When the milk is resumed, it should be diluted five to six times with water, and at first only a small quantity of the mixture given, such as two or three ounces at a time. In many of these cases a stomach washing will speedily correct the trouble. If the stomach bears the food well, its strength may gradually be increased by an additional half-ounce or ounce of milk to each feeding daily, until the former diet is resumed.

### Habitual Vomiting

Many children regurgitate or vomit a portion of every feeding. This means one thing always: the child has been or is overfed. He is given the food too strong, or the amount is greater than his capacity, or he is fed at too frequent intervals. In either case, the stomach relieves itself. Many of these children who regurgitate after each feeding thrive very well in spite of the loss. Enough is retained for their nourishment, and they gradually become accustomed to the strong food and no serious harm results. Such a stomach, however, is likely to behave very badly during the hot weather. In fact, during any illness that taxes the patient's strength the disordered stomach stands ready to furnish an unpleasant complication.

The treatment of habitual vomiting in the bottle-fed is by a suitable adaptation of the food and feeding interval. In the breast-fed too frequent nursings and too much at a feeding are usually the causes, both of which are readily remedied.

### Circumcision

Most infants do not need to be circumcised at all, if the foreskin is retracted early and the adhesions broken down. Be sure that the foreskin can be fully pulled back. Your physician should show you how to do this. The question as to the necessity of circumcision should be left to the physician.

### Vaccination

Babies should be vaccinated before they are a year old; that is, before they are to come in contact with people or before they are running around. It may, however, be necessary to postpone vaccination because of disease of the skin. Vaccination does not result in any injury unless the wound becomes dirty. Girls should not be vaccinated on the arm because the mark left by the vaccination will last through life.

### Communicable Diseases

A communicable disease is one due to a specific organism or virus which, when given off from the lesions of the disease and coming in contact with a susceptible person, may cause the disease in that exposed person. The disease, therefore, is transmitted in the great majority of instances through direct contact with the infected person and in other instances through contact with discharges and secretions in a fresh state which may have lodged on clothing, bedding, or other article. The organisms of disease existing in these discharges do not remain visible for any great length of time unless a suitable degree of heat and moisture is maintained.

Transmission of disease by means of "droplet infection" may play an important rôle in the communicability

of diseases such as measles and whooping-cough. The act of coughing and sneezing may scatter for a considerable distance small droplets of infected secretion from the nose and throat of a developing case of measles or whooping-cough. These droplets may remain suspended in the atmosphere, giving rise to a possibility of infection by inhalation. However, at the present time the highest authorities are of the opinion that, strictly speaking, no communicable disease is air-borne.

**Tuberculosis**

Tuberculosis is an infectious disease that carries off one seventh of the population of the earth. Children are very susceptible to the infection. The disease is caused by the entrance into the system of a micro-organism known as the tubercle bacillus. Tuberculosis is not inherited. The disease always comes from without, as does typhoid fever or diphtheria. We often see parents and children in turn sicken and die with this disease. This does not necessarily mean heredity, however. It means that there is a family condition of constitution that furnished a favorable soil for the development of the bacillus. If all who swallowed or inhaled the tubercle bacillus became tubercular, the earth would be depopulated in a very few years. We have all taken the tubercle bacillus into our bodies at some time, probably many times. In one individual the germ finds a favorable soil and flourishes; in another it finds unfavorable conditions—health and vigor of constitution—and it dies. The usual means of infection is through the inspired air by the inhalation of the infected dust from the public conveyances, from the street, or from infected dwellings. Infection may also take place by direct con-

tact through kissing. The bacillus may be swallowed with food or drink that has been contaminated.

Almost every portion of the body may become the seat of the tuberculous process. When the micro-organism attacks the lungs, it produces what is known as consumption, or pulmonary tuberculosis. When the covering of the brain is involved, the child has tuberculous meningitis. When the hip-joint is attacked, hip disease follows. When the spine is attacked, what is known as Pott's disease is produced. When the glands of the neck are infected, scrofulous glands or tuberculous adenitis is the outcome. Tuberculous disease of the knee is commonly known as white swelling. These are the parts that are frequently the seat of the tubercular process. With less frequency the bacillus attacks the bladder, the kidneys, the skin, the intestines, the mesenteric glands, and the peritoneum.

In institutions and among the poor, what is known as general tuberculosis causes the death of many infants. At autopsy they show an involvement of nearly all the internal organs. Tuberculosis in children is always a very serious disease, but it is not necessarily fatal; many cases recover. When the disease involves the spine, the hip-joint or the knee-joint, or the glands of the neck, the prognosis as regards life is unusually good. When the brain is attacked, the disease is always fatal. In tuberculous disease of the lungs in very young children the pognosis is very grave. Many older children—those from seven to eight years of age—recover, if the disease has not progressed too far before coming under treatment. The important features in the management of these cases are: change to a dry climate at an elevation of one thousand to fifteen hundred feet, close attention to

hygiene, and a carefully regulated diet in which there should be a generous allowance of meat, eggs, and milk.

**Fever**

By fever we understand an elevation of the temperature of the body above the normal, which in an infant is 99 degrees by rectum. Fever, however, does not constitute disease. It is nothing more or less than a symptom, but it always means that something is wrong with the baby. It may be due to a slight attack of indigestion, to the eruption of teeth, or to the beginning of scarlet fever or diphtheria or some other disease. Children develop fever much more rapidly than adults, and it is of less significance in them. A child with fever that is appreciable to the touch of the mother will usually register a temperature of 100.5 degrees. While such a temperature is by no means alarming, its cause should be discovered. In the absence of a clinical thermometer, in order to examine a baby for fever, place upon the abdomen the palm of the hand, which has been previously warmed. Examination of a child's hands, head, and feet furnishes us very inexact means of judging as to the question of fever. Many times these parts will be cold when the thermometer registers a temperature of 104 to 105 degrees. Every young mother should possess and know how to use a clinical thermometer. In case of sudden high fever—104 to 105 degrees—from any cause, the mother cannot make a mistake in giving an alcohol and water sponge-bath at a temperature of 85 degrees. One part alcohol may be added to three parts of water, and the child sponged for twenty minutes. If necessary, the sponging may be repeated every two or three hours; this will keep the child comfortable until the arrival of the physician and perhaps

prevent unpleasant complications. In case of fever the nourishment should always be reduced at once; if the child is on the bottle, reduce the strength of the food one half by the addition of boiled water. If the child is nursed, reduce the duration of each nursing period one third. Children with fever can always have plenty of cold boiled water to drink. Mothers must remember that it is not the fever in itself but the condition of the patient that governs us in our treatment. In scarlet fever and pneumonia a temperature of 102 degrees is expected and need cause no alarm.

### Taking Cold

By "taking cold" we understand that through the influence of cold upon some portion of the skin an impression similar in nature to that of shock is produced, which affects the entire body and manifests itself most frequently in the form of a congestion of the mucous membrane of the respiratory tract, between which and the skin there seems to be an intimate connection. Micro-organisms play an important rôle in the process. They are found in large numbers on the diseased mucous surfaces. The changes in the mucous membrane resulting from the exposure prepare the parts for their growth and development. The taking of cold means previous exposure, and what will constitute a sufficient degree of exposure in one individual may produce no effect in another. The child that perspires readily or the child that is made to perspire by unsuitable clothing suffers most in this respect during the cold season.

Inadequate head-covering is a most frequent cause of diseases of the respiratory tract in the young. Most infants are dressed for the daily outing in a warm room,

with the temperature ranging from 75 to 85 degrees. The child is wrapped in ample coats, blankets, and leggings; he is active, throws his legs and arms about; the dressing thus far requires a considerable period of time; he perspires freely, but the dressing is not completed. On the head is placed one of the more or less artistically decorated airy creations that are sold in the children's cap departments. They furnish little protection for the many square inches of the almost bald little head. The child is taken out of doors; a wind is blowing; the result is a cold, and how it came about is never understood. He was supposed to be dressed ideally for cold weather. The idea is common and to a certain degree proper that a child's head should be kept cool. This theory, however, gives rise to carelessness as to the head-dress. During the colder months it is wise to make a skull-cap out of thin flannel, which the child can wear under the regular outing-cap.

Allowing the child to sit on the floor during the winter months is probably the next most frequent cause of taking cold. Kicking off the bed-clothes at night is another frequent cause. Taking the child from a warm room through a cold hall is not without danger. Holding the child for a few minutes by an open window is often followed by croup, bronchitis, and pneumonia. The uneven temperature of the living- and sleeping-rooms in many of our houses and apartments is a very frequent cause of cold. Frequently during the day the temperature will be between 75 and 80 degrees, but at night, when the fires are banked, it falls to 55 or 60 degrees or lower. The child went to bed warm and perspiring, kicked off the bed-clothes, the temperature of the room fell, the body became chilled, and the child took cold.

Among rachitic children there is a marked predisposition to catarrhal affections: they acquire laryngitis and bronchitis upon very slight provocations, such as exposure to others suffering from similar affections.

In many instances colds in infants are attributed to the bath. Among dispensary mothers this is often considered a cause of cold.

Adults and "runabout" children with coughs and colds should not come in contact with infants. There is undoubtedly an element of contagion in such cases. It is a very bad practice to have a family pocket-handkerchief. The youngest infant is entitled to a handkerchief independent of the other children, and a handkerchief should never do service for more than one individual between washings.

Mothers can do little without medical aid in the treatment of colds, but they can do much in preventing them. The temperature of the living-room should range from 70 to 72 degrees, the sleeping-room from 60 to 66 degrees. Of course it will be impossible to keep the temperature at all times at these figures, but the nearer it approximates to them the safer the child will be.

Children must not be allowed to sit on the floor during the winter. They can have their playthings on the bed, on the sofa, or in a clothes-basket, which may be raised from the floor on two thick pieces of wood or a book or two. There is always a draught near the floor.

The room in which the child is dressed for an outing should not be above 70 degrees. Securely pinning bedclothes to the mattress, or, better, a combination suit with "feet," will do much to prevent the child from taking cold at night.

**Earache**

Infants and young children are very susceptible to attacks of earache. They usually occur in children that are suffering from some inflammatory condition of the throat or nose. Such, however, is not necessarily the case. In the young the only symptoms of the trouble may be restlessness, fever, which is usually present, and pain, which is manifested by crying. One repeatedly sees an attack so severe as to cause an infant to shriek with pain, without any sign to locate the trouble. An older child, in addition to the above, will usually raise the hand to the side affected or point to the painful ear. The child usually is much disturbed if the ear is touched or manipulated in any way. While severe pain is the rule, it may be absent; there may be loss of appetite, high fever, and restlessness for three or four days with no other sign of illness and no evidence whatever of pain, when suddenly one discovers a yellowish discharge from the ear, with temporary or permanent relief from the symptoms.

In case of an attack of earache, dry heat is of much service. Rest the ear on a hot-water bag, or apply a salt-bag, made by sewing together two pieces of muslin about three by five inches in size and filling it one half full with salt. The bag and contents are then pressed flat, heated, and applied to the ear, the salt retaining the heat for a long time. Another device is to fill the finger of an old glove with salt, heat it, and place the tip in the ear. As an extra precaution, the mother or nurse should always test it first by putting it in her own ear. A douche at 100 degrees may also be of considerable service in these cases; it should be administered as follows: The

child should be pinned in a sheet and lie on its back, with its head on a level with the body, or a little lower. A basin protected with a towel or absorbent cotton is placed under the ear. One assistant is required to steady the head, as the child will be sure to struggle. The douche-bag—an ordinary fountain-syringe—should be held not more than two feet above the child's head. From one to two pints of water may be needed. The tip of the syringe is placed about one quarter of an inch from the orifice of the canal, and the water is allowed to flow into the ear until the child is relieved or until the bag is empty. Such a douche may be repeated every hour until medical aid arrives.

Earache is usually due to the presence of pus or other fluid behind the drum membrane. This causes pressure within the ear, which may require a slight operation for its relief.

### Adenoids

Adenoids are tumor-like growths that develop at the junction of the upper portion of the posterior pharyngeal wall and the vault of the pharynx. They may simply cover the surface of the parts in a spongy layer, or they may fill the entire naso-pharyngeal space, completely blocking the passage from the nose to the throat. They are not to be considered as new growths but rather as hypertrophies or overgrowths of the mucous glands and tissues of the parts. They may vary in size from a flax-seed to a walnut. Among the causes of adenoids may be mentioned the use of the pacifier in infancy, repeated colds in the head, breathing the dust-laden air of our large cities, malnutrition, and unhygienic living. While the taking of cold is a factor in the development of adenoids,

our observation is that predisposition plays an important part. Many children have a tendency to glandular enlargement; in fact, in New York City a large percentge of the children under ten years of age have adenoids. In a child under two years of age the naso-pharyngeal space is a very narrow slit; and since the majority of children up to the eighteenth month of life are sucking on something the greater part of their waking hours, the soft palate is forced back against the posterior pharyngeal wall, interfering with the drainage of the parts; and on account of the friction of the opposed surfaces congestion and irritation follow, resulting finally in a general hypertrophy.

Very young children may have adenoids. The majority of cases occur in children from eighteen months to six years of age. A slight amount of adenoid growth may cause no symptoms.

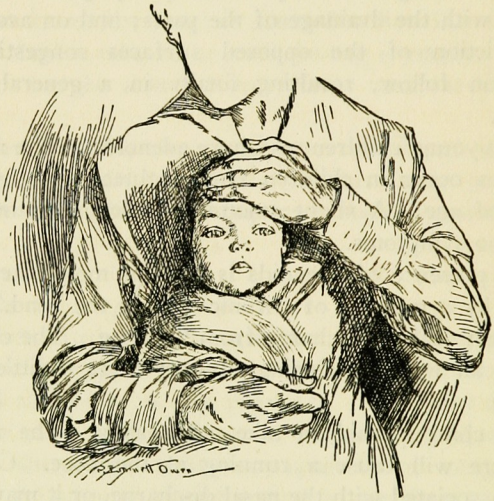
The presence of adenoids is perhaps most often manifested by symptoms of chronic cold in the head. There is a great deal of discharge from the nose. The child has sniffles all winter. During summer there is little if any trouble.

The child is said to take cold easily. The slightest exposure will cause a running at the nose. Cough is often associated with the nasal discharge, or it may follow it. The cough is worse at night; in fact, it often is not noticed until the child goes to bed. Such a cough was formerly known as "the nervous cough" or "the stomach cough."

If the growths are large, we have mouth-breathing added to other symptoms. The child breathes through the mouth both day and night, for the reason that the breathing-space through the nose is choked. The night

mouth-breathing gives rise to snoring; some of these children snore like adults. Almost every snoring child will be found to have either adenoids or enlarged tonsils or both.

In advanced cases the appearance of the face of the patient is characteristic. The habitual open mouth gives the face a stupid expression. In fact, such children are likely to be mentally dull. The nostrils are small and



How to hold a baby for throat examination

pinched. The upper lip is usually thickened. The voice is also affected: there is a decided nasal twang, and articulation is somewhat impaired. The child has trouble in blowing his nose. Occasionally adenoids are the cause of very severe nose-bleed. In a small proportion of the cases hearing is impaired. Bed-wetting may be due to adenoids: recently a writer reported seven cases of

inveterate bed-wetters, all cured by the removal of adenoids. These children are more susceptible to diphtheria, and if they contract the disease, it is likely to be more severe. For adenoids of any degree of severity complete removal is the only treatment. Sprays and the various local applications are absolutely worthless. The operation is practically without danger.

**Enlarged Tonsils**

Chronic enlargement of the tonsils is almost always associated with adenoids and is responsible in a degree for their presence. We may see cases of adenoids, however, in which there is no tonsilar enlargement. Predisposition and repeated attacks of acute tonsilitis lead to chronic enlargement of the tonsils. Enlarged tonsils, when associated with adenoids, do not change the character of the symptoms of adenoids except to aggravate them; therefore they should be removed as well as the adenoids. All other treatment in young children is useless. The operation in skilful hands may be said to be practically without danger. Parents always dread the operation, but the relief afforded the suffering child, and the knowledge that a serious obstacle to his growth and development has been removed, will repay them for their hours of anxiety. Gargles and sprays are of little or no value in chronic enlargement of the tonsils.

**Convulsions**

A convulsion is a temporary loss of consciousness, associated with rhythmical contractions of various muscles of the body. Rachitic, delicate children and those suffering from malnutrition in any form are predisposed to convulsions. Disturbances in the gastro-intestinal tract,

caused by errors in feeding, have been responsible in 95 per cent of cases. Nearly all are seen among the badly bottle-fed or in those beyond the bottle age who have been given food unsuited to their years. One frequently sees seizures follow an unusual indulgence in cake, pie, or fruit. Excessively high fever may be the cause of convulsions. Pneumonia, meningitis, and contagious diseases are sometimes ushered in by convulsions. Heat-prostration and worms may be mentioned as infrequent causes. Dentition is never an immediate cause. The dentition period covers eighteen months, and children often have convulsions during this time; a thorough examination of the patient, however, will usually reveal the seat of the trouble in the intestinal canal or stomach. Dentition may indirectly be the factor.

When a child is attacked, prompt action is necessary. The family physician should be sent for and the patient placed at once in a mustard bath at a temperature of 105 degrees; an even tablespoonful of mustard should be added to five gallons of water. The patient should not be allowed to remain in the bath for more than ten minutes, when he should be removed and dried vigorously. If possible, the child's temperature should be taken while in the bath, and if it is above 102 degrees (in convulsions it usually ranges between 104 and 106) the temperature of the water should be lowered to 75 or 80 degrees by the addition of ice or cold water. Watch the effect of the cooling of the bath upon the child's temperature, and when it is reduced to 101 degrees remove him. The temperature in convulsions should always be noted. There is no advantage in making the water hotter than 105 in the bath.

Immediately upon removal, give an enema of soap and

water so as to insure a movement of the bowels as soon as possible. As soon as the child can swallow, give one or two teaspoonfuls of castor-oil. If it is known that the child has taken something indigestible, a teaspoonful of syrup of ipecac should be given, and repeated in twenty minutes, if vomiting does not occur. The convulsion is very likely to be repeated if the cause is not removed. The patient should not be held in the lap. He should be placed in his crib and kept very quiet. Cold cloths should be applied to the head and a hot-water bag to the feet. No solid food or milk should be given for twenty-four hours; broths and barley-water should constitute the diet. During the next few days there should be no excitement, and the physician's orders regarding medication and diet should be carefully carried out.

# INDEX